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NATURAL HISTORY,

GENERAL AND PARTICULAR,

BY THE

COUNT DE BUFFON.

TRANSLATED INTO ENGLISH,

ILLUSTRATED

WITH ABOVE THREE HUNDRED COPPER-PLATES,

AND OCCASIONAL

NOTES AND OBSERVATIONS,

By WILLIAM SMELLIE,

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NATURAL HISTORY.

THE BEAR*.

THERE is no animal ſo generally known as the bear, concerning which the writers of natural hiſtory have differed ſo much. Their uncertainties, and even contradictions, with regard to the nature and manners of this animal, ſeem to have proceeded from their not diſtinguiſhing properly the different ſpecies; and, of courſe, they ſometimes aſcribe to one the properties of another. In the firſt place, the land-bear muſt be diſtinguiſhed from the ſea-bear, the latter being commonly called the *white bear*, or

* The bear has ſix cutting teeth and two canine in each jaw; five toes before and five behind. In walking, he reſts on the hind-feet, as far as the heel; *Pennant's Synopſ. of Quad. p.* 190.

In Greek, Αρκτος; in Latin, *Urſus*; in Italian, *Orſo*; in Spaniſh, *Oſſo*; in German, *Baer*; in Swediſh, *Bioern*; in Poliſh, *Wewer, Niedzwiedz*; in French, *L'Ours*.

Urſus; *Geſner. Quad.* p. 941. *Icon. Quad.* p. 65. *Ray, Synopſ. Quad.* p. 171. *Klein. Quad.* p. 82.

Urſus niger, cauda unicolore; *Briſſon. Regn. Anim.* p. 258.

Urſus cauda abrupta; *Linn. Syſt.* p. 69.

bear of the frozen ſea. Theſe two animals are very different, both in the form of their bodies, and in their natural diſpoſitions. The land-bears muſt again be diſtinguiſhed into the *brown* and the *black* *; becauſe, having neither the ſame inclinations, nor the ſame natural appetites, they cannot be regarded as varieties only of one and the ſame ſpecies. Beſides, ſome land-bears are white, and, though reſembling in colour the ſea-bear, they differ from it, in every other particular, as much as the other bears. Theſe white land-bears are found in Great Tartary †, in Muſcovy, in Lithuania, and in other northern regions. They are not rendered white during winter by the rigour of the climate, like the ermines, or the hares, but are brought forth white, and remain ſo in all ſeaſons. They ought, therefore, to be conſidered as a fourth ſpecies, if we did not alſo find bears with their hair conſiſting of a mixture of brown and white, which indicates an intermediate race between the white land-bear and the brown or black bear; conſequently the white land-bear is only a variety of one or other of theſe ſpecies.

The brown bear is very common in the Alps; but the black bear is extremely rare. The latter, on the contrary, abounds in the foreſts of the

* Under the denomination of the Brown Bears, I comprehend thoſe which are brown, yellow, red, or reddiſh; and under *black*, all the ſhades of that colour.

† See Relation de la Grande Tartarie, p. 8.

northern

northern regions of Europe and America. The brown bear is furious and carnivorous; but the black bear is only wild, and uniformly refuſes to eat fleſh. Of this we cannot give a more diſtinct and recent teſtimony than that of M. du Pratz, in his hiſtory of Louiſiana *.

'The black bear,' ſays he, 'appears in Louiſiana during the winter; becauſe the ſnows which cover the northern countries prevent him from finding ſufficient nouriſhment. He lives upon fruits, acorns, and roots; but he is peculiarly fond of honey and milk; and, when he meets with theſe articles, he will rather die than quit them. Notwithſtanding the common prejudice, I affirm, and in this aſſertion I am ſupported by all the inhabitants of this province, and of the neighbouring countries, that he is not a carnivorous animal. Though numerous, and often preſſed by extreme hunger, they never devour men, nor eat even butcher-meat, when they fall in with it. During the time I lived among the Natches, a ſevere winter in the northern regions made the bears deſcend in vaſt quantities. They were ſo numerous, that they ſtarved each other, and were very meagre. Famine made them come out of the woods which border on the river. We ſaw them during the night, run into houſes and court-yards, which were not properly ſhut, where they found meat expoſed; but they never touched it, and eat only what grains they could pick

* Tom. ii. p. 77.

up. On an occaſion ſo preſſing, they muſt infallibly have diſcovered their carnivorous diſpoſition, if they had an appetite of this nature. They never kill animals to devour them; and, if they were carnivorous, they would not abandon countries covered with ſnow, where they could find men and animals at will, in order to ſearch for fruits and roots, a ſpecies of food rejected by the carnivorous tribes.' M. du Pratz adds, in a note, that, ſince writing the above article, he had learned with certainty, that, in the mountains of Savoy, there are two kinds of bears, the one black, like thoſe of Louiſiana, and not carnivorous; the other red, and equally carnivorous as the wolves. The Baron de Hontan remarks*, that the bears of Canada are very black, but by no means dangerous; and that they never attack men, unleſs when ſhot at and wounded. He farther obſerves †, that the reddiſh bears are extremely miſchievous, and boldly attack the hunters; but that the black bears uniformly fly from men.

Wormius ‡ informs us, that there are three kinds of bears in Norway: The firſt (*breſſdiur*) is very large, not altogether black, but browniſh, and not ſo deſtructive as the other kinds, living only on herbs and the leaves of trees: The ſecond (*ildgierſduir*) is ſmaller, blacker, and carnivorous, often attacking horſes and other animals,

* Tom. i. p. 86. † Tom. ii p. 40.
‡ Muſ. Worm. p. 318.

eſpecially

eſpecially in autumn: The third (*myrebiorn*) is ſtill ſmaller, but fails not to be noxious. He is ſaid to feed upon ants, and delights in overturning their hillocks. It has been remarked (he adds, without proof), that theſe three kinds mix, and produce intermediate ſpecies; that the carnivorous kind attacks the flocks, kills every creature, like the wolf, and devours only one or two; that, though carnivorous, they eat wild fruits; and, when the fruit of the ſervice-tree abounds, they become more dangerous, becauſe this ſour fruit ſets their teeth ſo much on edge, that nothing but blood or greaſe can remove this malady, which prevents them from eating with eaſe. But moſt of theſe facts related by Wormius appear to be extremely equivocal; for we have no examples of animals, with appetites ſo uniformly different as thoſe of the two firſt ſpecies, the one living only on herbs and the leaves of trees, and the other on fleſh and blood, intermixing and producing intermediate ſpecies. Beſides, he makes the black bears carnivorous, and the brown frugivorous, which is abſolutely repugnant to truth. Add to this, that P. Rzaczynſki *, a Poliſh writer, and M. Klein of Dantzick †, in deſcribing the bears of their country, mention two ſpecies only, the black, and the brown or red; and, of the latter, they ſpeak of a larger and leſſer kind. They remark, that the black bears are more rare; that the

* Auctuar. Hiſt. Nat. p. 32. † De Quadrup. p. 82.

 brown,

brown, on the contrary, are very common; that the black bears are the largeſt, and feed upon ants; and, laſtly, that the red or brown kind are the moſt carnivorous and deſtructive. Theſe proofs, added to thoſe of M. du Pratz and of the Baron de la Hontan, are perfectly oppoſite to what Wormius advances. In a word, it appears to be certain, that the red or brown bears, which are found not only in Savoy, but in the high mountains, in the vaſt foreſts, and in almoſt every deſert of the earth, devour live animals, and even the moſt putrid carcaſes. The black bears inhabit not very cold countries, but we find the brown or red bears in the frozen, the temperate, and even in the ſouthern regions. They were common in Greece; and the Romans brought them from Lybia *, to be exhibited at their public ſpectacles. They are found in China †, in Japan ‡, in Arabia, in Egypt, and as far as the iſland of Java ‖. Ariſtotle § likewiſe mentions white land-bears, and conſiders this difference of colour as accidental, and proceeding from a defect in generation. Thus bears are found in all deſert, rude, and woody countries. But they

* Herodot. Solon. Crinit. et alii. Quod fræno Lybici domantur urſi, ſays *Martial*.

† Hiſt. Generale des Voyages, par M. l'Abbé Prevoſt, tom. iii. p. 492. Hiſt. Nat. du Japan, par Kœmpfer, tom. i. p. 109.

‡ Strabo, lib. xvi. Proſp. Alpin. p. 233.

‖ Voyage autour du Monde de le Gentil, tom. iii. p. 85.

§ Ariſtot. de Admir, cap. cxl. Idem de Gen. Anim. lib. v. cap. 6.

never appear in populous nations, nor in open and cultivated regions. There are none in France or in Britain, except, perhaps, a few in the moſt unfrequented mountains of France.

The bear is not only a ſavage, but a ſolitary animal. He flies from all ſociety, avoiding every place to which man can have acceſs, and is only eaſy where Nature appears in her rudeſt and moſt ancient form. An old cavern among inacceſſible rocks, or a grotto formed by time in the trunk of a decayed tree, in the midſt of a thick foreſt, ſerve him for an habitation. Thither he retires alone, and paſſes part of the winter without proviſions, and goes not out of it for ſeveral weeks. However, he is neither torpid, nor deprived of feeling, like the dormouſe and marmot; but, as he is exceſſively fat about the end of autumn, which is the time he retires, this abundance of greaſe enables him to endure abſtinence; and he departs not from his den till he is almoſt famiſhed. It is alledged, that the males leave not their retreats for forty days *; but that the females continue four months, becauſe it is there that they bring forth their young. It is difficult to believe that they ſhould not only ſubſiſt, but nouriſh their young, without taking food for ſo long a period. I allow, that, when pregnant, they are prodigiouſly fat, and that, being clothed with very thick hair, ſleeping the greateſt part of the time, and remaining without motion, they muſt

* Ariſtot. Hiſt. Anim. lib. viii. cap. 17.

loſe little by perſpiration. But, if it be true, that the males, preſſed with hunger, go out in forty days, it is not natural to think, that the females, after bringing forth and ſuckling their young, ſhould feel leſs the want of food, unleſs we ſuppoſe them to devour ſome of their offspring, together with the membranes, &c. which is not probable, notwithſtanding the example of the cats, which ſometimes eat their young. Beſides, I am here talking of the brown ſpecies only, the males of which devour the new-born cubs, when they diſcover them in their dens. The females, on the contrary, ſeem to love their offspring with an aſtoniſhing ardour: After they bring forth, they are more ferocious and more dangerous than the males. They fight, and expoſe themſelves to every peril, in order to ſave their young, who are not unformed for ſome time after birth, as the ancients alledged, but grow nearly as quick as other animals. They are perfectly formed in the womb of the mother*; and, if the fœtus, or young cub, ſeems, at the firſt glance, to be ill-formed, it is only becauſe the old bear herſelf, upon the whole, is an animal groſs and diſproportioned; and we know, that, in every ſpecies, the fœtus, or new-born animal, is more diſproportioned than the adult.

* In muſeo illuſt. ſenatus Bononienſis urſulum a cæſo matris utero extractum, et omnibus ſuis partibus formatum, in vaſe vitreo adhuc ſervamus; *Aldrov de Quadrup. p.* 120.

Autumn, with the bears, is the ſeaſon of love: The female is ſaid to be more ardent than the male. It is alledged, that ſhe lies on her back to receive him, that ſhe embraces him cloſely, and keeps him faſt for a long time, &c. It is certain, however, that they copulate like other quadrupeds. Captive bears have been ſeen coupling, and have been impregnated. But how long the females go with young, has not been ſo accurately marked as could be wiſhed. Ariſtotle* has ſaid, that they go with young 30 days only. As nobody has contradicted this fact, and as we are not in a condition to verify it, we, of courſe, can neither affirm nor deny with regard to this matter. We ſhall only remark, that it appears to be doubtful: 1. Becauſe the bear is a large animal; and, in proportion to the ſize of animals, they require the longer time to be formed in the womb: 2. Becauſe the young bears grow very ſlowly; they follow their mother, and require her aſſiſtance, for a year or two: 3. Becauſe the female produces but one, two, three, four, and never more than five; a property common to all large animals, who produce but a few young, and carry them long: 4. Becauſe the bear lives 20 or 25 years, and the time of geſtation and that of growth are generally proportioned to the duration of life. From theſe analogies, I am inclined to believe that the bear goes with young at leaſt ſeveral months. However this matter ſtands,

* Ariſt. Hiſt. Animal, lib. vi. cap. 30.

the

the mother takes the greateſt care of her young. She prepares for them a bed of moſs and herbs in the bottom of her cavern, and ſuckles them till they are able to go abroad with her. She brings forth in winter, and the cubs begin to follow her in the ſpring. The male and female live not together; but each has a ſeparate and a diſtant retreat. When they cannot find a cavern for a den to make a lodging, they break and collect branches of trees, which they ſo cover with herbs and leaves as to render them impenetrable by water.

The voice of the bear is a deep murmuring, often accompanied with a grinding of the teeth, eſpecially when irritated. He is very ſuſceptible of anger, which is always furious, and often capricious. Though, when tamed, he appears mild and even obedient to his maſter, he ſhould always be treated with diffidence and circumſpection; and we ſhould be particularly careful not to ſtrike him on the noſe, or on the parts of generation. He may be taught to walk on end, to dance, and to perform various geſticulations. He ſeems even to liſten to muſic, and to obſerve ſome kind of meaſure. But, to give him this ſpecies of education, he muſt be taken young, and conſtrained during life. An old bear cannot be tamed, nor will he ſuffer reſtraint. He is naturally intrepid, or, at leaſt, indifferent to danger. The wild bear never turns out of his road, nor flies from the aſpect of man. It is alledged, however,

ever, that the ſound of a whiſtle * ſurpriſes and confounds him to ſuch a degree, that he riſes on his hind feet. This is the time for ſhooting, and endeavouring to kill him; for, if he be only wounded, he attacks the huntſman with fury, embraces him with his fore-feet, and ſuffocates him †, if not timely aſſiſted.

Bears are hunted in different manners. In Sweden, Norway, Poland, &c. the leaſt dangerous mode, it is ſaid ‡, is to intoxicate them by throwing ardent ſpirits on honey, of which they are fond, and ſearch for it in the trunks of trees. In Louiſiana and Canada, where the black bears are common, and where they live not in caverns, but in decayed trees, they are taken by ſetting their habitations on fire §. As they climb trees with eaſe, they ſeldom reſide on a level with the ground, and their habitations are often 30 or 40 feet high. If it be a mother with her young, ſhe deſcends firſt, and is ſlain before ſhe reaches the ground. The cubs follow, are ſeized by throwing a rope round their necks, and carried off either for the purpoſes of training or eating them; for the fleſh of the cubs is delicate and good: That of the adult is eatable; but, as it is mixed with an oily fat, the paws alone, which are more compact, are reckoned a delicate diſh.

* Voyages de Regnard, tom. i. p. 37.

† Id. ibid. Hiſt. de la Louiſiane, par M. du Pratz, tom. ii. p. 81.

‡ Voyages de Regnard, tom. i. p. 53.

§ Mem. ſur la Louiſiane, par M. Dumont, p. 75. Hiſt. de la Louiſiane, par M. du Pratz, tom. ii. p. 87.

The

The hunting of the bear, without being very dangerous, is extremely lucrative, when performed with ſucceſs. The ſkin is a valuable fur, and the quantity of oil drawn from a ſingle bear is conſiderable. The fleſh and fat are boiled together in a caldron, and the oil is eaſily ſeparated. "Afterwards," ſays M. du Pratz, "the oil is purified, by throwing it, when very warm, into a quantity of ſalt and water. A detonation enſues, and a thick ſmoke riſes, which carries off the diſagreeable odour of the greaſe. When the ſmoke ceaſes, and while the greaſe is ſtill warm, it is put into a pot, where it is allowed to remain for eight or ten days. At the end of this period, a clear oil is ſeen ſwimming on the top, which is taken off with a ladle. This oil is equally good, and anſwers the ſame purpoſes, as the beſt olive oil. Beneath, we find a lard as white, but a little ſofter than hog's-lard. It ſerves for culinary purpoſes, and has no bad taſte or ſmell." M. Dumont, in his Memoirs of Louiſiana, agrees with M. du Pratz, and adds, that, from a ſingle bear, they obtain more than 120 pots of this oil; that the ſavages traffick in this article with the French; that it is very wholeſome and good; that it never congeals but during great colds, and, when this happens, it is all clotted and of a dazzling whiteneſs; and that it is then eaten upon bread like butter. Our druggiſts keep no bear's greaſe, but import, from Savoy, Switzerland, or Canada, axungium, which is by no means pure. The author

thor of the Dictionary of Commerce affirms, that good bear's greafe fhould be grayifh, vifcid, and of a difagreeable odour; and that, when too white, it is fophifticated and mixed with fuet. It is applied topically in hernias, rheumatifm, &c. and many perfons affure us, that they have felt its good effects.

The amazing fatnefs of the bear makes him light for fwimming; and, accordingly, he traverfes, with eafe, rivers and lakes. "The bears of Louifiana," fays Dumont *, "which are of a fine black colour, crofs the river, notwithftanding its great breadth. They are remarkably fond of the fruit of the *plaqueminier*, *guiacana* †, or date plumb-tree: They climb thefe trees, fit aftride upon a branch, keep themfelves firm with one hand, and collect the fruit with the other. They frequently come from the woods into the cultivated fields to eat potatoes and yams." In autumn, they are fo fat, that they can hardly walk ‡, or, at leaft, they cannot run fo quick as a man ||. Upon the fides and thighs they have fometimes ten inches thick of fat §. The foles of their feet are grofs and inflated. When wounded, there iffues out a white lacteous juice. This part appears to be compofed of

* Mem. fur la Louifiane, p. 76.

† For an account of this tree, fee Dict. Raifonné d'Hift. Nat. par Bomare.

‡ Voyage du Baron de la Hontan, p. 86.

|| Hift. de la Louifiane, par M. du Pratz, p. 83.

§ Extrait d'un ouvrage Danois cité par Mrs. Arnauld de Nobleville et Salerne; *Hift. Nat. des Animaux, tom.* vi. p. 374.

fmall

ſmall glands, like *papillæ*; and it is for this reaſon, that theſe animals, during their winter retreat, continually ſuck their paws.

The bear enjoys, in an excellent degree, the ſenſes of ſeeing, hearing, and touching, though his eye is proportionally ſmall, his ears ſhort, and his ſkin thick and covered with buſhy hair. His ſenſe of ſmelling is, perhaps, more exquiſite than that of any other animal; for the internal ſurface of this organ is very much extended, having four rows * of bony plates, ſeparated from each other by three perpendicular planes, which increaſe prodigiouſly the ſurfaces proper for the reception of impreſſions from odoriferous bodies. He has fleſhy legs and arms, like thoſe of a man, a ſhort heel-bone, which forms a part of the ſole of the foot, five metatarſal bones oppoſed to the heel in the hind-feet, and an equal number of metacarpal bones in the fore-feet. But the thumb is not ſeparated, and the largeſt finger is on the outſide of this ſpecies of hand; whereas, in man, it is on the inſide. His toes are thick, ſhort, and locked to each other, both in the hands and feet. His nails are black, and of a hard homogeneous ſubſtance. But theſe groſs reſemblances to man render the bear only more deformed, and give him no ſuperiority over the other animals.

* Etienne Lerentius, Ephem. d'Allem. decur. i. an. ix et x. p. 403. cité par Mrs. Arnauld de Nobleville et Salerne; *Hiſt. Nat. des Animaux*, tom. vi. p. 366.

SUPPLEMENT.

M. de Mufly, major of artillery in the fervice of the States General, has communicated fome notices concerning domeftic bears, of which the following is an extract.

"At Berne, where thefe animals are nourifhed," fays M. de Mufly, "they are kept in large fquare ditches, where they have room to walk about. Thefe ditches are covered above, and lined with ftone, both at the bottom and on the fides. Their lodges or cabbins are likewife paved on a level with the bottom of the ditch, divided into two by walls, and may be fhut both internally and externally by iron gates. In the middle of thefe ditches, there are large holes in the pavement, where confiderable trees may be fet up on end. There is likewife, in each ditch, a trough full of frefh water.

"Two young brown bears were tranfported here from Savoy, thirty-one years ago, of which the female is ftill alive; the male was killed about two months ago, by a fall from one of the high trees planted in the ditch. They began to generate at the age of five years: Since that time, they have every year come in feafon during the month of June; and the female has always brought forth in the beginning of January. The

first

firſt time ſhe produced one cub only, and afterwards, ſometimes one, ſometimes two, and ſometimes three, but never more; and the three laſt years ſhe brought forth one only at each time. The man who takes care of her, thinks her ſtill pregnant (October 17, 1771). When the young come into the world, their figure is pretty; their colour is yellow, but white round the neck; and they have not the leaſt appearance of bears. The mother is extremely fond of them. Their eyes are ſhut during four weeks. At firſt they exceed not eight inches in length; and three months after, they meaſure 14 or 15 inches from the end of the muzzle to the root of the tail; and their hair is nearly an inch long. Their figure is then almoſt round, and the muzzle is very ſharp pointed; ſo that a perſon would hardly know them. They afterwards become weak and tender till they acquire their full growth; the white colour is gradually effaced, and the yellow changes into brown.

During the act of copulation, the male commences with ſhort, but briſk movements, which laſt about a quarter of a minute; he then repoſes double that time upon the female, without diſengaging himſelf: In this manner he proceeds for three or four times; and when the operation is finiſhed, the male bathes himſelf in the trough up to the neck. They ſometimes fight cruelly, making a horrible grumbling noiſe. But, in the ſeaſon

ſeaſon of love, the female has generally the advantage, becauſe the male, at that time, ſpares her. The ditches, which formerly were in the town, are now filled up, and others are made between the ramparts and the old walls. Theſe two bears, having been ſeparated ſome hours when removing into new ditches, raiſed themſelves on an end when they again met, and embraced each other with tranſport. After the death of the male, the female appeared to be much afflicted, and refuſed every kind of nouriſhment for ſeveral days. But, unleſs theſe animals be brought up and fed together from their earlieſt youth, they cannot endure one another; and, after being accuſtomed to this kind of ſociety, the ſurvivor will not admit another mate.

"The trees put yearly into the ditches in the month of May, are green larches, in climbing upon which the bears take vaſt delight. They are fed with rye-bread, which is cut into large morſels, and ſteeped in warm water. They likewiſe eat all ſorts of fruits; and, when any unripe fruits are brought to the market, they are thrown in to the bears by order of the magiſtrate. It has been remarked, however, that ſome bears prefer pulſe to the fruits of trees. When the female is about to bring forth, they give her plenty of ſtraw, of which ſhe makes a rampart. After this the male is removed, leſt he ſhould eat the cubs; and when ſhe has littered, ſhe is fed with

with a more nouriſhing diet than uſual. We never could perceive any part of the membranes or after-birth, which makes it probable that ſhe eat them. The cubs are allowed to remain with her for ten weeks; and are afterwards ſeparated, and fed, for ſome time, with milk and biſcuit.

"The bear which we believed to be in a ſtate of pregnancy, was furniſhed, about the common time, with ſtraw, of which ſhe made a bed, and reſted on it during three weeks, without producing any thing. She brought forth, for the laſt time, at the age of 31, in the month of January 1771; but, though ſhe received the male in the following June, it was ineffectual in January 1772. It were to be wiſhed that ſhe was allowed to live, in order to diſcover the term fixed by Nature for the duration of theſe animals.

"There are brown bears on Mount Jura, upon the frontiers of our canton, in Franche-compté, and in the country of Gex. When they deſcend into the plains in autumn, they repair to the cheſnut woods, where they make great havock. In this country, the bears are ſaid to have weak eyes, but acute ſenſes of hearing, touching, and ſmelling."

The bears of Norway are more common in the provinces of Bergen and Drontheim, than in the other diſtricts of that country. Two races of them are remarked, of which the one is conſiderably ſmaller than the other. In the colours of

both, there are great varieties. Some of them are of a deep brown, others of a ſhining brown; and ſome are grey, and of every ſhade of white. At the beginning of October, they retire into the dens they prepare for themſelves, and where they make a kind of bed compoſed of moſs and leaves of trees. As theſe animals are very formidable, eſpecially when wounded, there are ſeldom leſs than three or four hunters in company; and, as the bear eaſily kills large dogs, they employ only ſmall dogs, who paſs under his belly, and ſeize him by the genitals. When he finds himſelf overpowered, he leans his back againſt a rock or a tree, collects turf and ſtones, which he throws at his enemies; and it is generally in this ſituation that he receives the finiſhing blow *.

We have ſeen at the menagery of Chantilly an American bear of a fine black colour, and having ſoft, ſtraight, long hair. We remarked other differences in the figure of this American bear, compared with that of Europe, as in the head, which is ſomewhat longer, becauſe the muzzle is not ſo flat as that of the European bear.

In the relation of M. de Bertram's expedition, we have a notice of an American bear, killed near St. John's river, in Eaſt Florida, in the following terms:

* Pontoppidan's Natural Hiſtory of Norway.

 "This

"This bear," according to the relation, "weighed only 400 pounds, though the length of its body was ſeven feet, from the extremity of the noſe to the tail. The fore-feet were only five inches broad, and the thickneſs of the fat was four inches. We drew from this animal 60 Paris pints of oil *."

* Letter of Mr. Collinſon to M. de Buffon, dated London, February 6, 1767.

Plate CIII.

A Bell Sculp.t

BEAR.

Plate CIV.

A. Bell Sculp.t

WHITE BEAR.

THE BEAVER*.

IN proportion as man riſes above a ſtate of nature, the other animals ſink below that ſtandard: Reduced to ſlavery, or treated as rebels, and diſperſed by force, their ſocieties have vaniſhed, their induſtry and genius have become barren, their arts have diſappeared, each ſpecies has loſt its general qualities, and the whole have preſerved only their individual properties, matured, in ſome, by example, by imitation, and by inſtruction; and, in others, by fear, and by the neceſſity of perpetually watching over their own ſafety. What views, what deſigns can be

* The beaver has two cutting teeth in each jaw, five toes on each foot, and a tail compreſſed, and covered with ſcales. He has ſtrong cutting teeth, ſhort ears hid in the fur, a blunt noſe, hair of a deep cheſnut brown, a broad, almoſt oval, tail, compreſſed horizontally, and with ſcales; the fore-feet are ſmall, and the hind-feet large; the length, from noſe to tail, is about three feet; and the tail is eleven inches long, and three broad; *Pennant's Synopſ. of Quad.*

In Greek, *καστος*; in Italian, *Bivaro*, *Bevero*; in Spaniſh, *Bevaro*; in German, *Biber*; in Swediſh, *Baeſſwer*; in Poliſh, *Bobr*; in French, *Le Caſtor*, or *Le Biévre.*

Caſtor; *Geſner. Hiſt. Quad. p.* 309. *Icon. Quad.* p. 84.

Caſtor five fiber; *Ray, Synopſ. Quad.* p. 209. *Klein, Quad.* p. 91.

Caſtor caſtanei coloris, cauda horizontaliter plana; *Briſſon. Regn. Anim.* p. 133.

Caſtor fiber, cauda ovata plana; *Linn. Syſt.* p. 78.

 poſſeſſed

poſſeſſed by ſlaves without ſpirit, or exiles without power? Compelled to fly, and to exiſt in ſolitude, they can attain to no improvement; they can neither acquire nor tranſmit knowledge, but muſt continually languiſh in calamity, and decay; they muſt perpetuate without multiplying; and, in a word, they muſt loſe by their duration more than they acquire by experience.

It is for this reaſon that there are now no remains of that aſtoniſhing induſtry of animals, except in thoſe diſtant and deſert regions where, for a long ſucceſſion of ages, they have received no diſturbance from man, where each ſpecies can diſplay with freedom its natural talents, and mature them in quiet, by uniting into permanent ſocieties. The beavers afford, perhaps, the only ſubſiſting monument of the antient intelligence of brutes, which, though infinitely inferior in principle to the human intellect, ſuppoſes common projects and relative views; projects which, having ſociety for their baſis, and, for their object, a dike to conſtruct, a town to build, or a republic to found, imply ſome mode of making themſelves underſtood, and the capacity of acting in concert.

The beavers are ſaid to be, among quadrupeds, what the bees are among the inſect tribes. There are in Nature, as ſhe now appears, three ſpecies of ſocieties, which muſt be examined before we can compare them: The free ſociety of man, from which, next to God, he derives all his power;

power; the conſtrained ſociety of the larger animals, which always flies before that of man; and the neceſſary ſociety of certain ſmall creatures, which, being all produced at the ſame time, and in the ſame place, are obliged to live together. An individual, ſolitary as he comes from the hand of Nature, is a ſterile being, whoſe induſtry is limited to the ſimple uſe of his ſenſes. Even man himſelf, in a ſtate of pure nature, deprived of the light and aſſiſtance of ſociety, neither multiplies nor conſtructs. Fertility, on the contrary, is the neceſſary reſult of every ſociety, however blind or fortuitous, provided it be compoſed of creatures of the ſame nature. From the neceſſity alone of deſiring to approach or to avoid each other, common movements ariſe, from which there often reſults a work, that has the air of being concerted, managed, and executed with intelligence. Thus the works of bees, each of whom, in a given place, ſuch as a hive, or the hollow of an old tree, builds a cell; the works of the Cayenne bee, or fly, which not only makes the cells, but the hive that is to contain them; are operations purely mechanical, and imply no intelligence, no concerted project, no general views; they are labours which being the produce of a phyſical neceſſity, a reſult of common movements *, are at all times, and in all places, uniformly executed in the ſame manner, by a multitude not aſſembled from choice, but united by the force of nature.

* See above, vol. iii. Diſſertation on the Nature of Animals.

Hence,

Hence, it is not ſociety, but numbers alone, which operate here. It is a blind power, never to be compared to that light by which all ſociety is directed. I ſpeak not of that pure light, that ray of divinity, which has been imparted to man alone. Of this the beavers, as well as all the other animals, are moſt aſſuredly deprived. But their ſociety, not being a union of conſtraint, but proceeding from a ſpecies of choice, and ſuppoſing, at leaſt, a general concert and common views in its members, implies likewiſe a certain degree of intelligence, which, though different in principle from that of man, produces effects ſo ſimilar as to admit of compariſon, not, indeed, to the luminous ſociety of poliſhed nations, but to the rudiments of it, as they appear among ſavages, whoſe union and operations can alone, with propriety, be compared to thoſe of certain animals.

Let us then examine the product of each of theſe aſſociations; let us ſee how far the art of the beaver extends, and to what the talents of the ſavage is limited. To break a branch, and to make a ſtaff of it, to build a hut, and to cover it with leaves, for ſhelter, to collect hay or moſs, and to make a bed of theſe materials, are operations common to the animal and to the ſavage. The beavers build huts, the monkeys carry ſtaves, and ſeveral other animals make commodious and neat houſes, which are impenetrable to water. To ſharpen a ſtone by friction, and make a hatchet of it, to uſe this hatchet for cutting

ting or peeling the bark off trees, for pointing arrows, for hollowing a veſſel, or for flaying an animal in order to clothe themſelves with its ſkin, to make bow-ſtrings of its ſinews, to fix the ſinews to a hard thorn or bone, and to uſe theſe for needles and thread, are actions purely individual, which man in ſolitude may perform without the aid of others; actions which depend ſolely on conformation, becauſe they ſuppoſe nothing but the uſe of the hand. But, to cut and tranſport a large tree, to build a village, or to conduct a large canoe, are operations, on the contrary, which neceſſarily ſuppoſe common labour and concerted views. Theſe works are the reſult of infant ſociety in ſavage nations; but the operations of the beavers are the fruits of ſociety already matured among theſe animals; for it muſt be remarked, that they never think of building, but in countries where they are perfectly free and undiſturbed. There are beavers in Languedoc, and in the iſlands of the Rhone; and they abound in many of the northern provinces of Europe. But, as all theſe countries are inhabited, or, at leaſt, frequented by men, the beavers there, like all the other animals, are diſperſed, ſolitary, fugitive, and timid creatures. They have never been known to unite, or to conſtruct any common work. But, in deſert regions, where men in ſociety were long of arriving, and where ſome veſtiges only of ſavages could be traced, the beavers have every where united, formed

 aſſoci-

aſſociations, and conſtructed works which continue to excite admiration. Of this I ſhall endeavour to quote the moſt judicious and irreproachable authorities, and ſhall hold as certain only thoſe facts concerning which authors agree. Leſs inclined, perhaps, than ſome of them, to indulge admiration, I ſhall venture to doubt, and even to criticiſe, every article that appears too hard to be credited.

It is univerſally allowed, that the beaver, in his purely individual qualities, inſtead of poſſeſſing any marked ſuperiority over the other animals, appears, on the contrary, to ſink conſiderably below ſome of them: And I am enabled to confirm this fact, being poſſeſſed of a young beaver, ſent me from Canada*, which I have kept alive near twelve months. This animal is very gentle, peaceable, and familiar. It is ſomewhat melancholy, and even plaintive; but has no violence or vehemence in its paſſions. Its movements are ſlow, and its efforts feeble; yet it is ſeriouſly occupied with a deſire of liberty, gnawing, from time to time, the gates of its priſon, but without fury or precipitation, and with the ſole view of making an opening for its eſcape. In other matters, it ſeems to be extremely indifferent, forming no attachments †, and neither wiſhes to hurt nor to

* This beaver was taken when very young, and tranſmitted to me in the beginning of the year 1758, by M. de Montbelliard, a captain of the Royal Artillery.

† We are told, however, by M. Klein, that he fed a beaver during

to pleaſe. In theſe relative qualities, which would make him approach to man, he ſeems to be inferior to the dog. He appears to be formed neither for ſerving, commanding, nor even holding commerce with any other ſpecies than his own. His ſenſe, locked up in his own perſon, never entirely manifeſts itſelf but among his own tribe. When alone, he has little perſonal induſtry, leſs artifice, and hardly prudence enough to avoid the groſſeſt ſnares. Inſtead of attacking other animals, he is very aukward in defending himſelf. He prefers flight to combat, though he bites cruelly when he finds himſelf ſeized by the hand of the hunter.

If, then, we conſider this animal in a ſtate of nature, or rather in a ſtate of ſolitude and diſperſion, he appears not, by his internal qualities, to riſe above the other animals. He has not the genius of a dog, the ſenſe of an elephant, the craftineſs of the fox, &c. but is more remarkable for ſome ſingularities of external conformation, than for any apparent ſuperiority of mental faculties. He is the only quadruped furniſhed with a flat, oval tail, covered with ſcales, which he uſes as a rudder to direct his courſe in the water; the only animal that has his hind-feet webbed, and the toes of his fore-feet, which he employs for carrying victuals to his mouth, ſeparate from each other; the only quadruped that

during ſeveral years, and that it followed, and went in queſt of him, as dogs ſearch for their maſters.

reſembles

resembles the land-animals in the anterior parts of his body, and the aquatic animals in the posterior. He forms the link between quadrupeds and fishes, as the bat does between quadrupeds and birds. But these peculiarities would be rather defects than perfections, if the beaver knew not how to derive, from this singular conformation, advantages which render him superior to every other quadruped.

The beavers begin to assemble in the month of June or July, for the purpose of uniting into society. They arrive in numbers, from all corners, and soon form a troop of two or three hundred. The place of rendezvous is generally the situation fixed for their establishment, and is always on the banks of waters. If the waters be flat, and never rise above their ordinary level, as in lakes, the beavers make no bank or dam. But, in rivers or brooks, where the waters are subject to risings and fallings, they build a bank, and, by this artifice, they form a pond or piece of water which remains always at the same height. The bank traverses the river, from one side to the other, like a sluice, and it is often from 80 to 100 feet long, by 10 or 12 broad at the base. This pile, for animals of a size so small, appears to be enormous, and supposes an incredible labour *. But the solidity with which the work is construct-

* The largest beavers weigh 50 or 60 pounds, and exceed not three feet in length, from the end of the muzzle to the origin of the tail.

ed,

ed, is ſtill more aſtoniſhing than its magnitude. The part of the river where they erect this bank is generally ſhallow. If they find on the margin a large tree, which can be made to fall into the water, they begin with cutting it down, to form the principal part of their work. This tree is often thicker than the body of a man. By gnawing the foot of the tree with their four cutting teeth, they accompliſh their purpoſe in a very ſhort time, and always make the tree fall acroſs the river. They next cut the branches from the trunk, to make it lie level. Theſe operations are performed by the whole community. Several beavers are employed in gnawing the foot of the tree, and others in lopping off the branches after it has fallen. Others, at the ſame time, traverſe the banks of the river, and cut down ſmaller trees, from the ſize of a man's leg to that of his thigh. Theſe they dreſs, and cut to a certain length, to make ſtakes of them, and firſt drag them by land to the margin of the river, and then by water to the place where the building is carrying on. Theſe piles they ſink down, and interweave the branches with the larger ſtakes. This operation implies the ſurmounting of many difficulties; for, to dreſs theſe ſtakes, and to put them in a ſituation nearly perpendicular, ſome of the beavers muſt elevate, with their teeth, the thick ends againſt the margin of the river, or againſt the croſs-tree, while others plunge to the bottom, and dig holes with their fore-feet, to receive the points, that

that they may ſtand on end. When ſome are labouring in this manner, others bring earth, which they plaſh with their feet, and beat firm with their tails. They carry the earth in their mouths, and with their fore-feet, and tranſport it in ſuch quantities, that they fill with it all the intervals between the piles. Theſe piles conſiſt of ſeveral rows of ſtakes, of equal height, all placed oppoſite to each other, and extend from one bank of the river to the other. The ſtakes facing the under part of the river, are placed perpendicularly; but the reſt of the work ſlopes upwards to ſuſtain the preſſure of the fluid; ſo that the bank, which is 10 or 12 feet wide at the baſe, is reduced to two or three at the top. It has, therefore, not only all the neceſſary thickneſs and ſolidity, but the moſt advantageous form for ſupporting the weight of the water, for preventing its iſſue, and to repel its efforts. Near the top, or thinneſt part of the bank, they make two or three ſloping holes, to allow the ſurface-water to eſcape, and theſe they enlarge or contract, according as the river riſes or falls; and, when any breaches are made in the bank by ſudden or violent inundations, they know how to repair them as ſoon as the water ſubſides.

It would be ſuperfluous, after this account of their public work, to give a detail of their particular operations, were it not neceſſary, in a hiſtory of theſe animals, to mention every fact, and were not the firſt great ſtructure made with a

view to render their ſmaller habitations more commodious. Theſe cabins or houſes are built upon piles near the margin of the pond, and have two openings, the one for going to the land, and the other for throwing themſelves into the water. The form of the edifices is either oval or round, ſome of them larger and ſome leſs, varying from four or five, to eight or ten feet diameter. Some of them conſiſt of three or four ſtories; and their walls are about two feet thick, raiſed perpendicularly upon planks, or plain ſtakes; which ſerve both for foundations and floors to their houſes. When they conſiſt but of one ſtory, the walls riſe perpendicularly a few feet only, afterwards aſſume a curved form, and terminate in a dome or vault, which ſerves them for a roof. They are built with amazing ſolidity, and neatly plaſtered both without and within. They are impenetrable to rain, and reſiſt the moſt impetuous winds. The partitions are covered with a kind of ſtucco, as nicely plaſtered as if it had been executed by the hand of man. In the application of this mortar, their tails ſerve for trowels, and their feet for plaſhing. They employ different materials, as wood, ſtone, and a kind of ſandy earth, which is not ſubject to be diſſolved in water. The wood they uſe is almoſt all of the light and tender kinds, as alders, poplars, and willows, which generally grow on the banks of rivers, and are more eaſily barked, cut, and tranſported, than the heavier and more ſolid ſpecies of timber. When

they

they once attack a tree, they never abandon it till they cut it down, and carry it off. They always begin the operation of cutting at a foot or a foot and a half above the ground: They labour in a ſitting poſture; and, beſide the convenience of this ſituation, they enjoy the pleaſure of gnawing perpetually the bark and wood, which are moſt palatable to their taſte; for they prefer freſh bark and tender wood to moſt of their ordinary aliment. Of theſe proviſions they lay up ample ſtores, to ſupport them during the winter*; but they are not fond of dry wood. It is in the water, and near their habitations, that they eſtabliſh their magazines. Each cabin has its own magazine, proportioned to the number of its inhabitants, who have all a common right to the ſtore, and never pillage their neighbours. Some villages are compoſed of twenty or twenty-five cabins. But theſe large eſtabliſhments are rare; and the common republic ſeldom exceeds ten or twelve families, of which each has his own quarter of the village, his own magazine, and his ſeparate habitation. They allow not ſtrangers to ſet down in their neighbourhood. The ſmalleſt cabins contain two, four, or ſix; and the largeſt

* The proviſion for eight or ten beavers, is twenty-five or thirty feet in length, by eight or ten feet in thickneſs. They tranſport not into their cabins wood or bark, till cut into thin ſlices, and juſt prepared for eating. They love freſh wood better than what has been floated, and go out, from time to time, during the winter, to eat freſh proviſions in the foreſts; *Mem. de l'Acad. ann.* 1704.

eighteen,

eighteen, twenty, and, it is alledged, ſometimes thirty beavers. They are almoſt always equally paired, being the ſame number of females as of males. Thus, upon a moderate computation, the ſociety is often compoſed of 150 or 200, who all, at firſt, laboured jointly, in raiſing the great public building, and afterwards in ſelect tribes or companies, in making particular habitations. In this ſociety, however numerous, an univerſal peace is maintained. Their union is cemented by common labours; and it is rendered perpetual by mutual convenience, and the abundance of proviſions which they amaſs and conſume together. Moderate appetites, a ſimple taſte, an averſion to blood and carnage, deprive them of the idea of rapine and war. They enjoy every poſſible good, while man knows only how to pant after happineſs. Friends to each other, if they have ſome foreign enemies, they know how to avoid them. When danger approaches, they advertiſe one another, by ſtriking their tail on the ſurface of the water, the noiſe of which is heard at a great diſtance, and reſounds through all the vaults of their habitations. Each takes his part; ſome plunge into the lake, others conceal themſelves within their walls, which can be penetrated only by the fire of heaven, or the ſteel of man, and which no animal will attempt either to open or to overturn. Theſe retreats are not only very ſafe, but neat and commodious. The floors are ſpread over with verdure; The branches of the box and the

 fir

fir ſerve them for carpets, upon which they permit not the ſmalleſt dirtineſs. The window that faces the water anſwers for a balcony to receive the freſh air, and to bathe. During the greateſt part of the day, they ſit on end, with their head and anterior parts of the body elevated, and their poſterior parts ſunk in the water. This window is made with caution, the aperture of which is ſufficiently raiſed to prevent its being ſtopped up with the ice, which, in the beaver climates, is often two or three feet thick. When this happens, they ſlope the ſole of the window, cut obliquely the ſtakes which ſupport it, and thus open a communication with the unfrozen water. This element is ſo neceſſary, or rather ſo agreeable to them, that they can ſeldom diſpenſe with it. They often ſwim a long way under the ice: It is then that they are moſt eaſily taken, by attacking the cabin on one hand, and, at the ſame time, watching at a hole made at ſome diſtance, where they are obliged to repair for the purpoſes of reſpiration. The continual habit of keeping their tail and poſterior parts in the water, appears to have changed the nature of their fleſh. That of their anterior parts, as far as the reins, has the taſte and conſiſtence of the fleſh of land or air animals; but that of the tail and poſteriors has the odour and all the other qualities of fiſh. The tail, which is a foot long, an inch thick, and five or ſix inches broad, is even an extremity or genuine portion of a fiſh attached to the body of a quadruped: It is entirely covered with ſcales, and

and with a ſkin perfectly ſimilar to that of large fiſhes. The ſcales may be ſcraped off with a knife, and, after falling, they leave an impreſſion on the ſkin, which is the caſe with all fiſhes.

It is in the beginning of ſummer that the beavers aſſemble. They employ the months of July and Auguſt in the conſtruction of their bank and cabins. They collect, in September, their proviſions of bark and wood: Afterwards they enjoy the fruits of their labours, and taſte the ſweets of domeſtic happineſs. This is the time of repoſe, and the ſeaſon of love. Knowing and loving one another from habit, from the pleaſures and fatigues of a common labour, each couple join not by chance, nor by the preſſing neceſſities of nature, but unite from choice and from taſte. They paſs together the autumn and the winter: Perfectly ſatisfied with each other, they never ſeparate. At eaſe in their cabins, they go not out but upon agreeable or uſeful excurſions, to bring in ſupplies of freſh bark, which they prefer to what is too dry or too much moiſtened with water. The females are ſaid to continue pregnant four months; they bring forth in the end of winter, and generally produce two or three at a time. About this period they are left by the males, who retire to the country to enjoy the pleaſures and the fruits of the ſpring. They return, occaſionally, to their cabins; but dwell there no more. The mothers continue in the cabins, and are occupied in nurſing, protecting, and rearing their young,

young, which, at the end of a few weeks, are in a condition to follow their dams. The females, in their turn, make little excursions to recruit themselves by the air, by eating fishes, crabs, and fresh bark, and, in this manner, pass the summer upon the waters, and in the woods. They assemble not again till autumn, unless their banks or cabins be overturned by inundations; for, when accidents of this kind happen, they suddenly collect their forces, in order to repair the breaches which have been made.

Some places they prefer to others for their habitation, and they have been observed, after having their labours frequently destroyed, to return every summer to repair them, till, being fatigued with this persecution, and weakened by the loss of several of their numbers, they took the resolution of changing their abode, and of retiring to solitudes still more profound. It is in winter that they are chiefly sought by the hunters; because their fur is not perfectly found in any other season: And, after their village is ruined, and numbers of them are taken, the society is sometimes too much reduced to admit of a fresh establishment; but those which escape death or captivity disperse and become vagabond. Their genius, withered by fear, never again expands. They hide themselves, and their talents, in holes; or, sunk to the condition of other animals, they lead a timid and a solitary life. Occupied only by pressing wants, and exerting solely their indivi-

dual

dual powers, they lose for ever those social qualities which we have been so justly admiring.

However marvellous the society and the operations I have now described may appear, it is impossible to doubt of their reality. All the facts mentioned by numbers of eye-witnesses * correspond with those I have related: And, if my narration differ from some which have been given, it is only in a few points that I judged too marvellous and improbable to be credited. Authors have not limited themselves to the social manners of the beavers, and to their evident talents for architecture, but have ascribed to them general ideas of police and of government. They have affirmed, that, after the beavers have established a society, they reduce strangers and

* See concerning the history of the beavers, *Olaüs Magnus* dans sa Description des Pays Septentrionaux; les Voyages du Baron de la Hontan, *tom.* ii. *p.* 155. & *suiv.* *Musæum Wormianum*, p. 320.; l'Histoire de l'Amérique Septentrionale par Bacqueville de la Poterie, *Rouen*, 1722, *tom.* i. *p.* 133.; Mémoire sur le Castor, par M. Sarrasin, inséré dans les Mémoires de l'Academie des Sciences, *année* 1704; la Relation d'un Voyage en Acadie, par Dierville, *Rouen*, 1708, *p.* 126. & *suiv.* les Nouvelles Découvertes dans l'Amérique Septentrionale, *Paris*, 1697, *p.* 133.; l'Histoire de la Nouvelle-France, par le P. Charlevoix, *Paris*, 1744, *tom.* ii. *p.* 98. & *suiv.* le Voyage de Robert Lade, traduit de l'Anglois par M. l'Abbé Prevost, *tom.* ii. *p.* 226.; le Grand Voyage au Pays des Hurons, par Sagard Theodat, *Paris*, 1632, *p.* 319. & *suiv.* le Voyage à la Baie de Hudson, par Ellis, *Paris*, 1749, *tom.* ii. *p.* 61 & 62. Voyez aussi Gesner, Aldrovande, Johnston, Klein, &c. à l'Article du Castor; le Traité du Castor par *Jean Marius*, *Paris*, 1746; l'Histoire de la Virginie, traduite de l'Anglois, *Orléans*, 1707, p. 406.; l'Histoire Naturelle du P. Rzaczynsky, à l'Article du Castor, &c. &c.

travellers of their own ſpecies into ſlavery; that theſe they employ to carry their earth and to drag their trees; that they treat in the ſame manner the lazy and old of their own ſociety; that they turn them on their backs, and make them ſerve as vehicles for the carriage of their materials; that theſe republicans never aſſociate but in an odd number, in order to have always a caſting voice in their deliberations; that each tribe has its chief; that they have eſtabliſhed ſentinels for the public ſafety; that, when purſued, they tear off their teſticles to ſatisfy the avarice of their hunters; that, in this mutilated ſtate, they exhibit themſelves to procure compaſſion from their perſecutors *, &c. In proportion as we reject with contempt thoſe exaggerated fables, we muſt admit the facts which are eſtabliſhed and confirmed by moral certainties. The works of this animal have been a thouſand times viewed, meaſured, overturned, deſigned, and engraven. What is ſtill more convincing, ſome of theſe ſingular works ſtill ſubſiſt, though leſs common than when North America was firſt diſcovered, and have been ſeen by all the miſſionaries, and all the lateſt travellers who have penetrated into the northern regions of that continent.

It is univerſally agreed, that beſide the beavers who live in ſociety, there are, in the ſame climate,

* See Ælian, and all the ancients, except Pliny, who, like a philoſopher, denies the fact. For the other articles, ſee moſt of the authors quoted in the preceding note.

others

others who are ſolitary, and rejected, it is ſaid, from the ſocial ſtate for their crimes, reaping none of its advantages, having neither houſe nor magazine, and living, like the badger, in holes under the ground. Theſe ſolitary beavers are called *terriers*. They are eaſily diſtinguiſhed by their dirty and tattered robe; for the hair of their back is rubbed off by the friction of the earth. They live, like the other kind, upon banks of waters, where ſome of them make a ditch of ſeveral feet deep, in order to form a pond that may reach to the mouth of their hole, which frequently exceeds 100 feet in length, and all along ſlopes upward, to facilitate their retreat, in proportion as the water riſes during inundations. But there are other ſolitary beavers, which live at a conſiderable diſtance from water. All our European beavers are terriers and ſolitary, and their fur is not nearly ſo valuable as that of thoſe which live in ſociety. They differ in colour, according to the climate they inhabit. In the northern deſerts, they are perfectly black, and their furs are fineſt; but, even there, ſome are found entirely white, others white ſpotted with gray, and others with a mixture of red upon the nap of the neck and haunches*. In proportion as they recede from the north, their colour turns clearer and more mixed. In the north of Canada they are cheſnut coloured; farther ſouth, they are bay,

* Caſtor albus, cauda horizontaliter plana; *Briſſon. Regn. Anim.* p. 94.

and

and of a pale ſtraw colour among the Ilionois *. In America, beavers are found from the 30th degree of north latitude to beyond the 60th. They are very frequent in the north, and gradually decreaſe as we advance ſouthward. The ſame thing holds in the Old Continent: They never appear in numbers but in the northern regions; and they are very rare in France, Spain, Italy, Greece, and Egypt. They were known to the ancients. The religion of the Magi prohibited the killing of beavers. They were common on the margins of the Pontus Exinus, and were diſtinguiſhed by the name of *Canes Pontici:* But they probably were not quiet enough in this ſituation (for the coaſts of this country have been frequented by men from the earlieſt periods of hiſtory), ſince their ſociety and labours are mentioned by none of the ancients. Ælian, in particular, who betrays ſo ſtrong an affection for the marvellous, and who, I believe, firſt ſaid that the beaver cut off his teſticles to allow them to be collected by the hunters †, would never have failed to mention the wonders of their republic, and their talents for architecture. Even Pliny himſelf, whoſe bold, ſublime, and melancholy genius, made him uniformly deſpiſe men to exalt Nature, could not have abſtained from comparing the labours of Romulus to thoſe of the beavers. It is, therefore, apparent, that their induſtry in building

* Hiſt. de la Nouvelle France, par le P. Charlevoix, tom. ii. p. 94.

† Hiſt. Anim. lib. vi. cap. 34.

was

was altogether unknown to the ancients; and, although cabined beavers have lately been found in Norway, and in other northern regions of Europe, and though it is probable that the ancient beavers built as well as the modern; yet, as the Romans never penetrated ſo far north, it is not ſurpriſing that their writers are ſilent on this ſubject.

Several authors have affirmed, that the beaver, being an aquatic animal, could not live upon land, without water. But this notion is falſe; for the young beaver ſent me from Canada was always kept in the houſe; and, when firſt preſented to water, it was afraid, and refuſed to enter into that element. But, after being forced, and retained in a baſon, it grew ſo eaſy in a few minutes, that it made no attempts to get out; and, when left at liberty, it often returned to the water ſpontaneouſly. It likewiſe avails itſelf of the mire and moiſt pavements. One day he eſcaped, and deſcended by a ſtair into the ſubterraneous vaults in the royal garden. He continued for ſome time to ſwim in the ſtagnant water in the bottom of theſe vaults. However, as ſoon as he ſaw the light of the torches which were brought to ſearch for him, he returned to thoſe who called him, and allowed himſelf quietly to be taken. He is familiar, without being careſſing: He aſks to eat from thoſe who are at table; and his petitions conſiſt of a ſmall plaintive cry, and ſome geſtures with his hand. When he receives

ceives a morſel, he carries off and conceals it, to be eaten at leiſure. He ſleeps pretty often, repoſing on his belly. He eats every thing, except fleſh, which he conſtantly refuſes, whether it be raw or roaſted. He gnaws every thing he can find, ſtuffs, furniture, wood, &c.; and we have been obliged to line, with a double coat of tinned iron, the barrel in which he was tranſported.

Though the beavers prefer the margins of lakes, rivers, and other freſh waters; yet they are found on the ſea-coaſts, but principally on mediterranean gulfs which receive great rivers, where the water has not its uſual ſaltneſs. They are hoſtile to the otter, whom they chace, and will not permit to appear in the waters they frequent. The fur of the beaver is finer and more buſhy than that of the otter: It conſiſts of two kinds of hair; the one, which is ſhort, but buſhy, fine as down, and impenetrable by water, immediately covers the ſkin; the other, which is longer, firmer, more ſplendid, but thinner, ſerves the former as a ſurtout, defending it from duſt and dirt. This ſecond kind of hair is of little value; it is the firſt alone that is employed in our manufactures. The black furs are generally moſt buſhy, and conſequently in greateſt eſteem. The fur of the terrier beaver is much inferior to that of the cabin-building kind. The beavers, like all other quadrupeds, caſt their hair in ſummer; and the furs of thoſe caught during this ſeaſon are of little value.

value. The fur of the white beaver is greatly esteemed, on account of its rarity; and the perfectly black furs are nearly as rare as the white.

But, beside the fur, which is the most precious article, the beaver furnishes a matter, of which great use has been made in medicine. This matter, called *castoreum*, is contained in two large bags or bladders, which the ancients mistook for the testicles of the animal. We shall here give neither the description nor the uses of that substance *, because they are to be found in all our dispensatories †. The savages, it is said, extract an oil from the tail of the beaver, and use it as a topical application for several diseases. The flesh of the beaver, though fat and delicate, has always a disagreeable flavour. Their bones are said to be excessively hard; but, concerning this fact, we have had no opportunities of determining, because we dissected only a young one. Their teeth are very hard, and so sharp, that they are used by the savages as knives to cut, hollow, and polish their timber. The savages clothe themselves with beavers skins; and, in winter, turn the shaggy side inward; and these, from their having imbibed much sweat from the perspiration of

* See Le Traité du Castor, par Marius et Francus.

† It is alledged that the beavers press out this liquor with their feet, that it restores their appetite after a disgust, and that the savages rub the snares with it which they lay for apprehending these animals. It is more certain, however, that they use this liquor for greasing their hair.

their

their wearers, are called *fat-beaver*, or *coat-beaver*, and are employed for coarſe works only.

The beaver uſes his fore-feet, like hands, with equal dexterity as the ſquirrel, the toes being well ſeparated; but thoſe of the hind-feet are united by a membrane. Theſe they employ as fins, and extend them like the toes of a gooſe, which animal they reſemble in their walking upon land. The beaver ſwims better than he runs: As his fore-legs are much ſhorter than the hind ones, he always walks with his head low, and his back arched. His ſenſes are extremely delicate, eſpecially the ſenſe of ſmelling. Dirtineſs and bad ſmells ſeem to be perfectly unſupportable to him. When retained in confinement too long, and obliged to void his excrements, he places them near the threſhold of the door, and, as ſoon as it is opened, he puſhes them out. This habit of cleanlineſs is natural to them; and our young beaver never failed, in this manner, to clean his habitation. At the age of twelve months, he exhibited marks of ardour for a female, which renders it probable that he had then nearly attained his full growth. Hence the duration of life in theſe animals cannot be very long; perhaps it is too much to extend it to fifteen or twenty years. It is not aſtoniſhing that this beaver was ſmaller than others of his age, having been perpetually confined almoſt from his birth; and, being unacquainted with water till he was nine months old, he could neither grow nor ex-

pand

Plate CV.

A. Bell Sculp[t]

BEAVER.

pand like thoſe who enjoy liberty, and the uſe of that element, which appears to be equally neceſſary to them as the land.

SUPPPLEMENT.

WE formerly remarked, that the beavers were common to both Continents; and they are, in fact, as frequent in Siberia as in Canada. They may be eaſily tamed, and even taught to fiſh, and to bring home their prey to the family. M. Kalm aſſures us of this fact:

'I have ſeen in America,' ſays he, 'beavers ſo 'fully tamed, that, when ſent out to fiſh, they 'brought home the booty to their maſter. I have 'alſo ſeen others which were ſo familiar with their 'maſters, and with the dogs, that they followed 'them, accompanied them in the boats, jumped 'into the water, and, in a moment after, re'turned with a fiſh *.'

'We have ſeen,' ſays M. Gmelin, 'in a ſmall 'village of Siberia, a beaver that was brought 'up in the houſe, and was ſo exceedingly trac'table, that he ſometimes made voyages to a con'ſiderable diſtance, decoyed females, and brought 'them home; after the ſeaſon of love was over, 'theſe females returned without any conduc'tor †.'

* Voyage de Kalm, tom. ii. p. 350.

† Voyage de Kamtſchatka, p. 73.

THE RACCOON*.

SEVERAL authors have deſcribed this animal under the name of *Coati*. But, to prevent its being confounded with the true *Coati*, or even with the *Coati-mondi*, we have adopted its Engliſh name.

The raccoon which we have had alive, and kept him twelve months, was of the ſize and figure of a ſmall badger. His body is thick and ſhort, and the hair long, buſhy, black at the points, and gray underneath. His head reſembles that of the fox; but his ears are round and much ſhorter. The eyes are large, and of a yellowiſh green colour. Above the eyes, a black band runs

* This animal has a black ſharp pointed noſe; upper jaw longer; ears ſhort, and rounded; eyes ſurrounded with two broad patches of black; from the forehead to the noſe, a duſky line; face, cheeks, and chin, white; upper part of the body covered with hair, aſh-coloured at the root, whitiſh in the middle, and tipt with black; tail very buſhy, annulated with black; toes black, and quite divided; *Pennant's Synopſ. of Quad. p.* 199.

Vulpi affinis Americana, Rattoon ſeu Raccoon; *Ray, Quad. p.* 179.

Vulpes Americana, Mapach dicta, Anglice Rattoon; *Charlet. p.* 15.

Raccoon; *Sloane, Hiſt. of Jamaica, tom.* ii. p. 329.

Urſus lotor, cauda annulata, faſcia per oculos tranſverſali nigra; *Linn. Syſt. Nat. p.* 70.

Coati Braſilienſium; *Klein. Quad.* p. 72.

Urſus cauda annulatim variegata; *Briſſon. Regn. Animal.* p. 261.

acroſs;

acroſs; the muzzle is ſlender, the noſe ſomewhat turned up, and the upper lip advances beyond the under one. He has, like the dog, ſix cutting teeth, and two canine in each jaw. The tail is buſhy, as long as the body, and marked alternately with black and white rings through its whole extent. The fore-legs are much ſhorter than the hind ones; and there are five toes, armed with ſtrong ſharp claws, on each foot. The hind feet reſt ſo much on the heel, that the animal can elevate and ſupport his body in a poſition inclined forwards. He uſes the fore-feet in carrying food to his mouth. But, as his toes are rigid, and have little flexibility, he uſes both hands at a time in laying hold of what is given him. Though thick and ſhort, he is very agile: His claws, which are ſharp as thorns, enable him to climb trees with great facility. He mounts the trunk with alacrity, and runs to the extremities of the branches. He goes by leaps, rather gambols than walks, and his movements, though oblique, are quick and light.

This animal is a native of the ſouthern parts of America. He is never found in the Ancient Continent; at leaſt, thoſe travellers who have deſcribed the animals of Africa and the Eaſt Indies make no mention of him. But he is very common in the warm regions of America, and particularly in Jamaica *, where he lives in the mountains, from which he deſcends to eat the ſugar

* Sloan's Nat. Hiſt. of Jamaica, tom. ii. p. 329.

 canes.

canes. He appears not in Canada, nor in the northern parts of the Continent; and yet he can ſupport exceſſive cold. M. Klein * kept one at Dantzick; and the one in my poſſeſſion has paſſed a whole night with his feet frozen in ice, without ſuffering any injury.

The raccoon ſoftens, or rather dilutes, in water every thing he intends to eat. He throws his bread into the baſon that holds his water; and, unleſs preſſed with hunger, he does not remove it till it be well ſoaked. But, when very hungry, he eats dry food, or any thing that is preſented to him. He ſearches about, and eats every thing that he can find, as fleſh, either crude or prepared, fiſhes, eggs, living fowls, grain, roots, &c. He likewiſe devours all kinds of inſects. He delights in hunting ſpiders; and, when at liberty in the garden, he eats graſshoppers, ſnails, and worms. He loves ſugar, milk, and other ſoft kinds of nouriſhment, except fruits; but all theſe he rejects, when he can have fleſh or fiſh. He retires to a diſtance to obey the calls of nature. He is familiar, and even careſſing; for he leaps upon thoſe he is fond of, playing ſpontaneouſly, and perpetually moving about with great agility. He appears to have much of the nature of the maki, and to poſſeſs ſome of the qualities of the dog.

* Klein, Quad. p. 62.

Plate CVI.

A. Bell Sculp.t

RACCOON.

SUPPLEMENT.

CONCERNING the raccoon, I have received the following communication from M. Blanquart des Salines, in a letter dated Calais, October 29, 1775.

" My raccoon, before he came into my poſſeſſion, had always been chained. In this ſtate of captivity, he was very gentle, but had little inclination to careſs. The people of the houſe were all equally kind to him; but he received them differently; for what pleaſed him in one, he revolted againſt in another; and in this his conduct was invariable.

" His chain ſometimes broke; and liberty rendered him inſolent. He took poſſeſſion of an apartment, would allow none to enter, and it was with ſome difficulty that he could again be reconciled to bondage. Since he came under my management, I have frequently given him his liberty. Without loſing ſight of him, I allowed him to walk about with his chain; and each time his gratitude was expreſſed by a thouſand careſſing gambols. But this is by no means the caſe when he makes his eſcape himſelf. He then roams about, ſometimes for three or four days together, upon the roofs of the neighbouring houſes, deſcends, during the night-time, into the court-yards, enters the hen-houſes,

 ſtrangles

ſtrangles all the poultry, and eats their heads. His chain does not render him more humane, but only more circumſpect. He then employs every artifice to make the fowls grow familiar with him; he permits them to partake of his victuals; and it is only after having inſpired them with the higheſt notions of ſecurity, that he ſeizes one, and tears it in pieces. Some young cats have met with the ſame fate. The motions of this animal, though light, are always oblique; and I doubt if he can overtake other animals by running. He opens oyſters with wonderful dexterity. His ſenſe of touching muſt be exquiſite. In all his little operations, he ſeldom uſes either his noſe or his eye. For example, he makes an oyſter paſs under his hind-paws; then, without looking at it, he ſearches with his hands for the weakeſt part; there he ſinks his claws, ſeparates the ſhells, and leaves not a veſtige of the fiſh. In all this operation, neither his eyes nor his noſe, which he keeps at a diſtance, are of the leaſt uſe to him.

"This raccoon is not very grateful for the careſſes he receives; but is extremely ſenſible of bad treatment. A ſervant one day gave him ſeveral laſhes with a whip. But this man has ever ſince endeavoured in vain to accompliſh a reconciliation. Neither eggs nor fiſhes, of which the animal is exceedingly fond, can appeaſe his reſentment. At the approach of the ſervant, the raccoon flies into a rage; his eyes kindle; he

ſprings

ſprings at the man, utters moſt dolorous cries, and rejects every thing preſented to him, till the diſagreeable object diſappears. The accents of his rage are very ſingular, ſometimes reſembling the whiſtling noiſe of the curlew, and ſometimes the hoarſe barking of an old dog.

" If any perſon ſtrikes him, or if he is attacked by an animal that he thinks ſtronger than himſelf, he makes no reſiſtance; but, like the hedge-hog, conceals his head and feet by rolling up his body in the form of a ball; no complaint eſcapes him; and, in this poſition, he calmly ſubmits to be killed.

" I remarked, that he never allowed hay or ſtraw to remain in his neſt; but choſe rather to lie upon wood. When litter is put in, he inſtantly throws it out. I never perceived that cold made him uneaſy. Of three winters, he has paſſed two expoſed to all the rigours of the air. I have ſeen him covered with ſnow, having no ſhelter, and yet in good health. I imagine that he is not ſolicitous about heat. During the laſt froſts, I preſented to him warm water, and water almoſt frozen, for diluting his food; but he uniformly preferred the latter. He had liberty of ſleeping in the ſtable; but he often preferred a corner of the court.

" The defect of ſaliva, or having but a ſmall quantity of it, is, I imagine, the reaſon why this animal dilutes his food with water. He never wets freſh or bloody meat, nor a peach, nor a raiſin.

raisin. But he plunges every thing that is dry into his bason.

"He abhors children; their crying irritates him; and he makes every effort to spring upon them. A small bitch, of which he is fond, he chastises severely when she barks too loud. I know not why several animals equally detest sharp cries. In the year 1770, I had five white mice. I happened to make one of them cry; the others attacked it: I continued to make it cry; and they killed it.

"This raccoon is a female; she comes in season in the beginning of summer, and her ardour for the male continues six weeks. During this period, nothing can quiet her; every object is disgusting; and she hardly takes nourishment. A hundred times each day she passes, between her thighs and between her fore-feet, her bushy tail, which she seizes by the end with her teeth, and agitates perpetually, to give friction to the parts.

"This animal acquires not its full growth till it be two years and a half old."

The COATI, or BRASILIAN WEASEL*.

THIS animal has been called *Coati-mondi* by ſeveral authors. We have had it alive; and, after comparing it with the Coati mentioned by Thevet, and deſcribed by Marcgrave, we diſcovered the Coati and Coati-mondi to be only varieties of the ſame ſpecies; for Marcgrave, after deſcribing the Coati, ſays that there are other Coati of a dark brown colour, called, for the ſake of diſtinction, *coati-mondi* by the Braſilians. He admits not, therefore, any other difference between the coati and coati-mondi, but that of the colour of the hair; and hence they can be regarded as varieties only of the ſame ſpecies.

* Weaſel with the upper jaw lengthened into a pliant moveable proboſcis, much longer than the lower jaw; ears rounded; eyes ſmall; noſe duſky; hair on the body ſmooth, ſoft, and gloſſy, of a bright bay colour; tail annulated with duſky and bay; breaſt whitiſh; length from noſe to tail eighteen inches; tail thirteen inches; *Pennant's Synopſ. of Quad. p.* 229.

Coati; *Thevet, Singular. de la France Antarctique, p.* 95. *Marcgrav. Hiſt. Nat. Braſil. p.* 228.

Coati-mondi; *Hiſt. de l'Acad. tom.* iii. *part.* ii. *p.* 17.

Vulpes minor, roſtro ſuperiori longiuſculo, cauda annulatim ex nigro et ruſo variegata; *Barrere Hiſt. de la France Equinoct. p.* 167.

Urſus naſo producto et mobili, cauda annulatim variegata; *Briſſon. Regn. Animal. p.* 190.

Viverra naſua, rufa, cauda albo annulata; *Linn. Syſt.* p. 64.

The

The coati is very different from the raccoon described in the preceding article. He is of a smaller stature; his body and neck, head and muzzle, are much longer; the upper jaw is terminated by a kind of moveable snout, which stretches an inch, or an inch and a half, beyond the extremity of the under jaw. This turned up snout, joined to the length of the jaws, gives to the muzzle a curved and elevated appearance. The coati has also smaller eyes than the raccoon, shorter ears, longer, coarser, and less variegated hair, shorter legs, and longer feet; and it rests still more upon the heel. Like the raccoon, it has an annulated tail *, and five toes on each foot.

Some authors regard the sow-badger as a coati, and have added to this genus the *taxus suillus* †, of which Aldrovandus has given a figure. But when it is considered, that the sow-badger mentioned by hunters is supposed to be found in France, and even in colder European climates, and that, on the contrary, the coati never appears but in the southern climates of the New Continent, this notion must be rejected, as having no foundation to support it ‡; for the figure given by Aldrovandus is nothing more than that of a

* Some coatis have the tail of one uniform colour; but, as there are no other differences, they must be considered as varieties only, and not as distinct species.

† Brisson. Regn. Anim. p. 263.

‡ See what we remarked concerning the Taxus suillus, article Badger.

badger,

badger, with the addition of a ſow's ſnout. The author pretends not to have drawn this animal from nature; and he has not deſcribed it. The long muzzle and moveable ſnout ſufficiently diſtinguiſh the coati from all other animals. Like the bear, the coati ſtands with eaſe on his hind-feet, reſting upon his broad heels, which are terminated by large calloſities, extending outward, and augmenting the baſe of the feet.

The coati has a trick of gnawing his own tail, which, when not mutilated, exceeds the length of the body; he generally carries his tail erect, and ſweeps it about from ſide to ſide. This remarkable practice of gnawing the tail is not, however, peculiar to the coati; the monkeys, the *makis*, and ſome other animals which have long tails, ſhorten them one third, or one fourth, by eating both the fleſh and the vertebræ. This circumſtance gave riſe to a general concluſion, that, in very long members, the extremities of which are, of courſe, removed to a great diſtance from the centre of ſenſation, the feeling is weak, and that this weakneſs of feeling is proportioned to the diſtance and the thinneſs of the part; for, if the extremity of the tail, in thoſe animals, was very ſenſible, the pain excited would be ſtronger than the deſire of mutilation, and they would preſerve their tails with equal anxiety as the other parts of their bodies. Upon the whole, the coati is an animal of prey,

 which

which lives upon flesh and blood, and which, like the fox or martin, devours small animals and fowls*, eats eggs, and hunts for the nests of birds†; and it is, probably, from this conformity of disposition, rather than from any resemblance to the martin, that the coati has been considered as a small species of the fox‡.

* Marcgrave, Hist. Brasil. p. 228.

† Thevet, Singular. de la France Antarct. p. 96.

‡ In the Seventh Volume of the Transactions of the Swedish Academy, we have the following remarks concerning the coati-mondi, by Linnæus, which we shall transcribe, without pretending to vouch his facts.

'This animal,' says Linnæus, 'is *equally* numerous both 'in *South* and in *North* America. In the length of his hind-'legs, the inclination of his head, the bushiness of his hair, and 'in his paws, he resembles the bear. But he is small and fa-'miliar; and his tail is very long, and variegated with diffe-'rent colours. The Prince of Sweden made a present of one 'of these animals to Linnæus, who kept it a considerable 'time, but lost all the labour he bestowed in attempting to 'civilize it; for the coati-mondi, when it could slip into the 'court-yard, *violating all the rights of hospitality*, tore off the '*heads* of the poultry, and *drank* their blood. It was so ob-'stinate, that it would do nothing contrary to its inclination. 'Notwithstanding the smallness of this animal, he defended 'himself with great force, when any body attempted to seize 'him against his will; and he stuck fast to the legs of those with 'whom he was familiar, when he wanted to *ransack* their '*pockets*, and carry off what he found in them. But there is '*a remedy* for this *obstinacy*. The coati has an extreme aversion 'to hog's bristles; and the smallest *brush* makes him desert his 'enterprise. He was *one day* worried by a mastiff; and M. 'Linnæus *dissected* him. His mode of living was very singu-'lar.

Plate CVII.

A. Bell Sculpt

BLACK COATI.

Plate CVIII.

A Bell Sculp.

BROWN COATI.

'lar. He slept from midnight till noon, waked the rest 'of the day, and uniformly walked about from six in the even-'ing till midnight, without the least regard to the weather. This 'is probably the time assigned by nature to this species of ani-'mals, when in their own *country*, for procuring their food, for 'hunting birds, and discovering their eggs, which constitute 'their principal nourishment;' *Biblioth. raisonnée, tom.* xli. *part.* i. *p.* 25.

The AGOUTI, or Long-nosed CAVY*.

THIS animal is about the ſize of a hare, and has been regarded, by moſt ſyſtematic writers, as a ſpecies of rabbit, or large rat. Theſe animals, however, it reſembles in ſome minute characters only; but, in natural diſpoſitions, it differs eſſentially from them both. It has the rudeneſs of hair, the grunting, and likewiſe the vora-

* Cavy, with a long noſe; divided upper lip; ſhort rounded lips; black eyes; hair hard and ſhining; on the body, mixed with red, brown, and black; on the rump, of a bright orange colour; belly yellow; legs almoſt naked, ſlender, and black; four toes on the fore-feet, three on the hind; tail ſhort, and naked; ſize of a rabbit; *Pennant's Synopſ. of Quad.* p. 245.

Agouti is the Indian name of this animal; but, in Braſil, it is called *Cotia*; *Piſon, et Marcgrave.*

Acuti or agouti; *Hiſt. du Nouveau Monde par Jean de Laet*, p. 484. The little that Laet has ſaid of this animal is tranſcribed from a Portugueſe writer.

Aguti; *Piſon. Hiſt. Nat. du Braſil.* p. 102. Acuti or Aguti; *Marcgrave, Hiſt. Nat. Braſil.* p. 224.

Couti; *Hiſt. des Indes par Souchu de Rennefort*, p. 203.

Mus ſylveſtris Americanus, cuniculi magnitudine, pilis et voce porcelli; *Ray, Synopſ. Quad.* p. 226.

Cuniculus omnium vulgatiſſimus, aguti vulgo; *Barrere, Hiſt. de la France Equinoctiale*, p. 153.

Cavia, aguti, vel acuti Braſilienſibus; *Klein. Quad.* p. 50.

Cuniculus caudatus, auritus, pilis ex rufo et fuſco mixtis, rigidis veſtitus; *Briſſon. Regn. Anim.* p. 143.

Mus aguti, cauda abreviata, palmis tetradactylis, plantis tridactylis, abdomine flaveſcente; *Linn. Syſt.* p. 80.

cious

cious appetite of a hog; and, when fully glutted, it conceals, like the fox, the remainder of its food in different places. The agouti delights in cutting and gnawing every thing he meets with. When irritated, the hair of his back riſes, and he ſtrikes the ground forcibly with his hind-feet. His bite is cruel*. He digs not a hole like the rabbit, nor ſits on the ground like the hare; but generally lives in the hollows of decayed trees. Fruits, potatoes, and manioc, are the common food of thoſe which live near the habitations of men. But thoſe which live in the woods and ſavannas feed upon leaves and roots, plants and ſhrubs. The agouti, like the ſquirrel, uſes his fore-feet in holding his food, and carrying it to his mouth. He runs very nimbly both on plain and riſing grounds. But, as his fore-legs are much ſhorter than his hind-legs, he would tumble headlong, if he did not ſlacken his courſe in deſcending. Both his eye and his ear are fine. He ſtops and liſtens to the ſound of muſic. The fleſh of thoſe which are fat and well fed is not very bad, though it be hard, and not very agreeable to the taſte. They ſcald the agouti, and make him ready, in the ſame manner as a pig. He is hunted with dogs. When forced among the cut ſugar canes, he is ſoon taken; becauſe theſe grounds being generally covered a foot

* This animal is very miſchievous: The capuchins of Olinda in Braſil brought up a young one, and uſed the precaution of extracting his teeth; yet he continued to extend his devaſtations as far as his chain allowed him; *Hiſt. des Indes par Souchu de Rennefort, p.* 203.

thick

thick with ſtraw and leaves, at each leap he ſinks in this litter, ſo that a man may overtake and ſlay him with a ſtick. He commonly runs very nimbly before the dogs; and, when he gains his retreat, he lies ſquat, and remains obſtinately in his concealment. The hunters are obliged to chaſe him out by filling his hole with ſmoke: The animal, half ſuffocated, utters mournful cries; but never iſſues forth, unleſs when puſhed to the laſt extremity. His cry, which he often repeats when diſturbed or irritated, reſembles that of a ſmall hog. If taken young, he is eaſily tamed, and goes out and returns of his own accord. Theſe animals commonly reſide in the woods and hedges; where the females chooſe a place well covered and buſhy, and there prepare a bed of leaves and hay for their young. They annually produce two or three, but generally two *. Like the cats, they tranſport their young, two or three days after birth, into the hollows of trees, where they ſuckle them for a ſhort time. The young are ſoon in a condition to follow their mother, and to ſearch for food. Thus their time of growth is ſhort; and, conſequently, the duration of their lives cannot be long.

The agouti appears to be an animal peculiar to the ſouthern parts of America, as none of them are ever found in the old world. They are com-

* Hiſt. Gen. des Iſles Antilles, par le Pere du Tertre, tom. ii. p. 296.

mon

mon in Braſil, in Guiana, in St. Domingo, and in all the iſlands. They ſeem to require a warm climate, in order to ſubſiſt and to multiply. They can live, however, in France, if kept in a dry place, and ſheltered from the winter froſts. Even in America, they appear not in the temperate or cold regions. In the iſlands, there is only the ſpecies of agouti which we have deſcribed. But at Cayenne, and in Guiana and Braſil, a ſecond ſpecies is mentioned, called *Agouchi*, which is ſaid to be uniformly ſmaller than the firſt. But we are aſſured, by the evidence of perſons who have lived long at Cayenne, and who know both the agouti and agouchi, the latter of which we have never been able to procure, that the animal we have deſcribed is the true agouti. We had it alive: It was as large as a rabbit; its hair was rude, and of a brown colour, a little mixed with red. Its upper lip was divided like that of the hare: Its tail was ſtill ſhorter than the tail of the rabbit: The ears were ſhort and broad. The upper jaw advanced beyond the under: The muzzle reſembled that of the dormouſe, and the teeth thoſe of the marmot. The neck was long, and the legs ſlender: It had four toes on the fore, and three on the hind-feet. Marcgrave and moſt naturaliſts after him have aſſerted, that the agouti had ſix toes on the hind-feet. M. Briſſon is the only writer who has not copied this error of Marcgrave: Having deſcribed the animal from

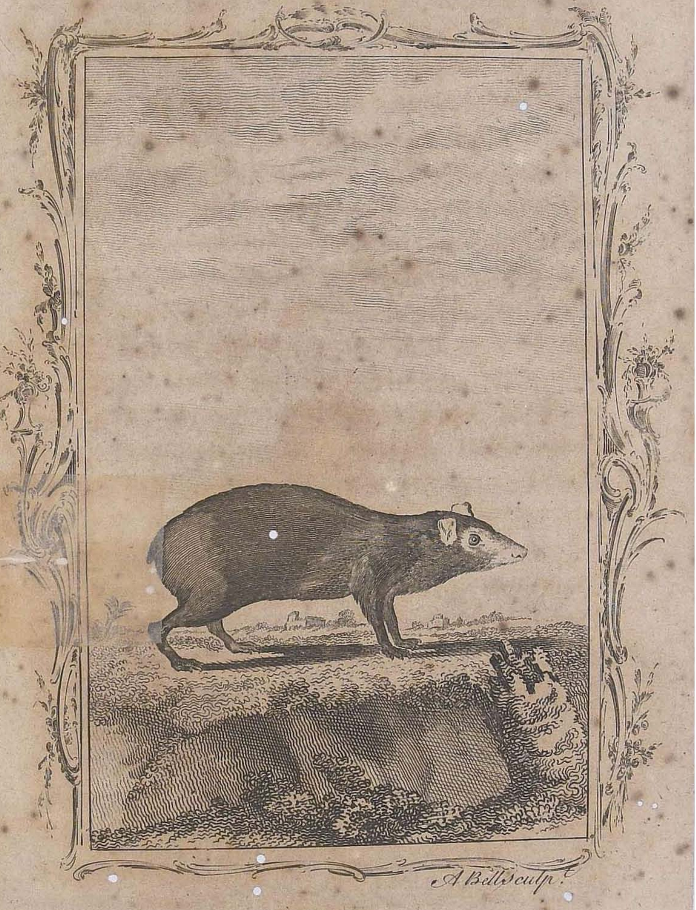
from nature, he found, as we did, only three toes on the hind-feet.

SUPPLEMENT.

WE have little to add concerning the agouti: M. de la Borde informs us, that, in Guiana, it is the moſt common quadruped, all the woods, plains, heights, and even the marſhes, being full of theſe animals.

" The Agouti," ſays he, " is about the ſize of a hare; his ſkin is hard, and laſts very long when employed as an upper-leather to ſhoes. He has no greaſe: His fleſh is as white and nearly as good as that of the rabbit, having the ſame taſte and flavour. Whether old or young, their fleſh is always tender; but theſe which inhabit the ſea-coaſt are beſt. They are taken in traps, or hunted with dogs. The Indians and Negroes, who know how to allure them by whiſtling, or imitating their cries, kill as many of them as they pleaſe. When purſued, they conceal themſelves, like the rabbits, in the holes of old trees. They hold their food in their paws, like the ſquirrels. Their ordinary food, which they often conceal in the earth, to be uſed occaſionally, are the nuts of the maripa, of the tourlovri, of the corana, &c.; and, after concealing theſe nuts, they often touch them not for ſix months.

Plate CIX.



AGOUTI.

months. They multiply as faſt as the rabbits, producing three, four, and ſometimes five young ones, during every ſeaſon of the year. They live not in numbers in the ſame hole; but they are either found alone, or the mother with her young. They are eaſily tamed, and eat almoſt every thing. When in a domeſtic ſtate, they remove not to any great diſtance, and always return to the houſe ſpontaneouſly. But they conſtantly retain a little of their ſavage diſpoſition. In general, they remain in their holes during the night, unleſs the moon ſhines bright; but they run about during moſt of the day. There are ſome countries, as about the mouth of the river of the Amazones, where theſe animals are ſo numerous, that they are often met with in ſcores.

THE LION*.

THE influence of climate, in the human ſpecies, is marked only by ſlight varieties; becauſe this ſpecies is ſingle, and extremely diſtinct from every other. Man, white in Europe, black in Africa, yellow in Aſia, and red in America, is the ſame animal, tinctured with the colour peculiar to the climate. As he is formed to exerciſe dominion over the earth, and, as he has the whole globe for his habitation, his nature ſeems to be accommodated to every ſituation. Under the fervours of the ſouth, or the frozen regions of the north, he lives, multiplies, and is ſo univerſally and ſo anciently diffuſed over every country, that he appears to have no peculiar climate.

* Cat with a large head; ſhort rounded ears; face covered with ſhort hairs; upper part of the head, chin, whole neck and ſhoulders, with long ſhaggy hairs, like a mane; hair on the body and limbs ſhort and ſmooth; along the bottom of the belly long; limbs of vaſt ſtrength; tail long, with a tuft of long hairs at the end; colour tawny, but on the belly inclines to white; length of the largeſt lion, from noſe to tail, above eight feet; the tail four feet: The lioneſs or female is leſs, and wants the mane; *Pennant's Synopſ. of Quad.* p. 164.

In Greek, Λεων; in Latin, *Leo*; in Italian, *Leone*; in Spaniſh, *Leon*; in German, *Lew*; in Swediſh, *Leyon*; in French, *Le Lion*.

Leo; *Geſner. Quad.* p. 572. *Icon. Quad.* p. 66. *Ray, Synopſ. Quad.* p. 162. *Klein. Quad.* p. 81.

Felis leo, cauda elongata, corpore helvolo; *Linn. Syſt.* p. 60.

Felis cauda in floccum deſinente; *Briſſon. Regn. Anim.* p. 267.

Among

Among the other animals, on the contrary, the influence of climate is ſtronger, and marked by ſenſible characters; becauſe they differ in ſpecies, and their nature is perfect, and leſs diffuſed than that of man. The varieties of each ſpecies are not only more numerous, and more ſtrongly marked, but even the differences of ſpecies themſelves ſeem to depend upon the differences of climate. Some are unable to propagate but in warm, and others cannot ſubſiſt but in cold countries. The lion never inhabited the northern regions; the rein-deer was never found in the ſouth; and perhaps no other ſpecies but that of man is generally diffuſed over the whole ſurface of the globe. Each has its peculiar country, to which it is confined by a phyſical neceſſity; each is a genuine ſon of the country it inhabits; and it is in this ſenſe alone, that particular animals ought to be called natives of a particular climate.

In warm countries, the land-animals are larger and ſtronger than in the frozen or temperate regions. They are likewiſe more hardy and ferocious. All their natural qualities ſeem to originate from the ardour of the climate. Lions, born under the ſcorching heats of Africa or the Indies, are the ſtrongeſt, the fierceſt, and the moſt formidable. Our wolves, and other carnivorous animals, would hardly have the merit of being his providers*. The lions of America, if they deſerve that name, are, like the climate, infinitely

* There is a ſpecies of Lynx call *the Lion's Provider*.

 more

more mild than thoſe of Africa; and, what proves that the exceſs of their ferocity originates from the exceſs of heat, is, that, in the ſame country, thoſe who inhabit the high mountains, where the air is temperate, differ in diſpoſition from thoſe who live in the plains, where the heat is extreme. The lions of Mount Atlas, the ſummit of which is ſometimes covered with ſnow, have neither the courage, the ſtrength, nor the ferocity of the lions of Biledulgerid or of Zaara, whoſe plains are covered with burning ſands. It is chiefly in theſe fervid deſerts that we meet with thoſe terrible lions, who are the dread of travellers, and the ſcourge of the neighbouring provinces. Happily the ſpecies is not numerous: It even appears to diminiſh daily; for, from the teſtimony of thoſe who have traverſed this part of Africa, the number of lions is not nearly ſo great as formerly. The Romans, ſays Mr. Shaw *, drew from Lybia, for their public ſpectacles, fifty times more lions than could now be found in that country. It has likewiſe been remarked, that, in Turkey, Perſia, and India, lions are much leſs frequent than they were in ancient times: And, as this bold and powerful creature preys on every other animal, and is himſelf a prey to none, the diminution of the ſpecies can only be attributed to the increaſe of the numbers of mankind; for, it muſt be allowed, that the ſtrength of the king of animals is not match againſt the addreſs of a

* Shaw's Travels.

Hottentot

Hottentot or a Negro, who often attack him, face to face, with very light weapons. The lion, having no enemy but man, and his ſpecies being reduced to a fiftieth, or, if you will, to a tenth part of its former ſtandard, it follows, that the human ſpecies, inſtead of having ſuffered any conſiderable diminution ſince the time of the Romans (as has been often alledged), is, on the contrary, increaſed, even in ſuch countries as Lybia, where the power of man appeared to have been greater during the æra of Carthage, than it is now under that of Tunis and Algiers.

Man's induſtry augments in proportion to his numbers; but that of the other animals remains always the ſame. All the deſtructive ſpecies, as that of the lion, ſeem to be baniſhed to diſtant regions, or reduced to a ſmall number, not only becauſe mankind have increaſed, but becauſe they have alſo become more powerful, and have invented formidable arms which nothing can reſiſt. Would to God man had never combined the operations of ſteel and fire for other purpoſes than thoſe of deſtroying lions and tigers!

This ſuperiority of man in numbers, and in induſtry, which has impaired the force of the lion, has likewiſe enervated his courage. Among animals this latter quality, though natural, riſes or falls according as the exertions of their ſtrength are ſucceſsful or abortive. In the vaſt deſerts of Zaara, in thoſe which ſeem to ſeparate two very different races of men, the Negroes and the

the Moors, in the unpeopled regions that lie about the territories of the Hottentots, and, in general, in all thoſe ſouthern parts of Africa and Aſia, which man has diſdained to inhabit, the lions are ſtill very numerous, and continue in their natural ſtate. Accuſtomed to meaſure their ſtrength with that of every animal they meet, the habit of conquering renders them terrible and intrepid. Being ignorant of the power of man, they are not afraid to encounter him. Having never experienced the force of his arms, they hold them in defiance. Wounds enrage, without terrifying them. They are not diſconcerted even by the appearance of numbers. A ſingle lion of the deſert often attacks a whole caravan; and if, after a violent and obſtinate engagement, he finds himſelf fatigued, inſtead of flying, he retreats fighting, always oppoſing himſelf to the enemy. Thoſe lions, on the other hand, who dwell in the neighbourhood of the towns or villages of India or Barbary *, being acquainted with man, and the power of his arms, have loſt their native fortitude to ſuch a degree, that they fly from the threatenings of his voice, and dare not attack him. They content themſelves with ſeizing ſmall cattle, and even fly before the women and children †, who make them indignantly quit their prey, by ſtriking them with clubs.

* L'Afrique de Marmol, tom. ii. p. 213. & la Relation du Voyage de Thevenot, tom. ii. p. 112.

† L'Afrique de Marmol, tom. i. p. 54.

This

This change, this ſoftening in the temper of the lion, indicates that he is ſuſceptible of the impreſſions he receives, and that he muſt poſſeſs a docility ſufficient to render him tameable to a certain degree, and to admit of a ſpecies of education: And hiſtory informs us, that lions have been yoked in triumphal cars, and conducted to the battle or the chaſe; and that, faithful to their maſters, they never exerted their ſtrength or their courage but in oppoſition to the common enemy. This much is certain, that the lion, when taken young, and brought up among domeſtic animals, is eaſily accuſtomed to live, and even to ſport innocently with them; that he is gentle and careſſing to his maſter; and that, if he ſometimes reſumes his natural ferocity, he ſeldom turns his rage againſt his benefactors. As his movements are impetuous, and his appetites vehement, we ought not to preſume that they can always be balanced by the impreſſions of education. It is dangerous, therefore, to allow him to want food too long, or to irritate him unneceſſarily. Bad treatment not only enrages him, but he remembers it, and ſeems to meditate revenge in the ſame manner as he remembers and requites benefits received. Here I might quote a great number of particular facts, ſome of which appear to be exaggerated; but the whole, when combined, are ſufficient to prove, that the anger of the lion is noble, his courage magnanimous, and his temper ſuſceptible of impreſſions. He has often been known

known to disdain the insults, and to pardon the offensive liberties, of weak enemies. When led into captivity, he discovers symptoms of uneasiness, without anger or peevishness; on the contrary, he assumes habits of gentleness, obeys his master, caresses the hand that feeds him, and sometimes pardons the animals which are thrown to him for prey. By this act of generosity, he seems to consider himself as for ever bound to protect them; he lives peaceably with them, allows them a part, and sometimes the whole of his food, and will rather submit to the gnawings of hunger than destroy the fruit of his own beneficence.

The lion cannot justly be branded with cruelty, since he acts from necessity, and kills no more than he consumes; while the tiger, the wolf, the hyæna, and many other inferior species, such as the fox, the martin, the polecat, the ferret, &c. delight in slaughter, and seem rather to gratify their rage than their hunger.

The external appearance of the lion detracts not from the noble and generous qualities of his mind. His figure is respectable, his looks firm and determined, his gait stately, and his voice tremendous. His bulk is not excessive, like that of the elephant or rhinoceros. He is not gross and unwieldy, like the hippopotamus or the ox, nor too contracted, like the hyæna or the bear, nor lengthened to deformity, like the camel. The body of the lion, on the contrary, is so well poised and proportioned, that it may be regarded as a perfect

perfect model of ſtrength combined with agility: Equally ſolid and ſpringy, neither ſurcharged with fat nor with fleſh, and containing nothing ſuperfluous, he ſeems to be conſtituted entirely of nerves and of muſcles. This great muſcular force is manifeſted by the prodigious leaps and bounds which he performs with eaſe; by the briſk movements of his tail, a ſingle ſweep of which is ſufficient to throw a man to the ground; by the facility with which he moves the ſkin of his face, and eſpecially that of his front, which heightens greatly the expreſſion of fury; and, laſtly, by the power of moving the hair of his mane, which he not only erects, but agitates on all ſides, when he is enraged.

To all theſe ſplendid individual qualities of the lion, we may add the nobleneſs of his ſpecies. By noble ſpecies in nature, I mean thoſe which are conſtant, invariable, and liable to no ſuſpicion of degradation. Theſe ſpecies are commonly ſingular, and of themſelves conſtitute a genus. They are diſtinguiſhed by characters ſo deeply marked, that they can be neither miſtaken, nor confounded with any other. To begin with man, who is the nobleſt being of the creation, his ſpecies is ſingle, ſince men of all races, of all climates, and of all colours, can mix and propagate together; and, at the ſame time, no animal can be ſaid to make any approaches to the human ſpecies by natural relation. In the horſe, the ſpecies is not ſo noble as the individual; becauſe he is ſo nearly

 approached

approached by the aſs, that a junction of the two produces individuals, whom Nature treats as baſtards, unworthy of the genuine race, and renders incapable of perpetuating either ſpecies of which they are the iſſue; but, as proceeding from a mixture of the two, they fail not to demonſtrate the great affinity between them. In the dog, the ſpecies is, perhaps, ſtill leſs noble, becauſe it ſeems to be allied to thoſe of the wolf, the fox, and jackall, who may all be regarded as degenerated branches of the ſame family. In deſcending gradually to the inferior ſpecies, as thoſe of the rabbit, weaſel, rat, &c. we ſhall find, that each particular ſpecies has a number of collateral branches of which we are unable to diſcover the genuine root. Laſtly, in the inſects, which ought to be regarded as the loweſt ſpecies in Nature, each kind is accompanied with ſo many neighbouring ſpecies, that we are obliged to denominate them by genera only. This is the chief uſe of methodical diſtributions, which ought not to be employed, except in difficult enumerations of the ſmalleſt objects in nature, but which become totally uſeleſs, and even ridiculous, in treating of the particular tribes. To claſs man with the monkey, or to ſay, that the lion is *a cat with a long mane and tail*, is to degrade and disfigure, inſtead of deſcribing or denominating the objects of nature.

The ſpecies of the lion, therefore, is one of the moſt noble, becauſe it is ſingle, and cannot be confounded

confounded with thofe of the tiger, leopard, ounce, &c. Thefe fpecies, which feem to be the leaft removed from the lion, are fo little diftinguifhed from each other, that they have often been confounded by travellers and methodifts *.

The largeft lions are about eight or nine feet long, by four or five feet high, and the tail is about four feet long †. The fmall fized lions are about five and a half feet long, by three and a half feet high, and the tail is about three and a half feet in length. The lionefs, in all dimenfions, is about one fourth part lefs than the lion.

Ariftotle ‡ diftinguifhes lions into the greater and the fmaller; the latter, he remarks, are proportionally fhorter in the body, have their hair more crifped, and are lefs courageous than the former. He adds, that, in general, all lions are of a yellow colour. The firft of thefe facts feems to be doubtful; for no traveller mentions lions with crifped hair: Some authors, who, in other refpects, appear not to merit entire confidence, talk of a tiger with crifped hair, which is found at the Cape of Good Hope ‖. But almoft all authors agree as to the colour of the lion,

* See the article Tiger, where we have mentioned fome animals to which this name has been improperly applied.

† A very young lion, diffected by the gentlemen of the Academy, was feven and a half feet long, from the extremity of the muzzle to the origin of the tail, and four and a half feet high.

‡ Hift. Anim. cap. 44.

‖ Les Mem. de Kolbe, in which he calls this animal the *Wolf-tiger*.

which

which is yellow on the back, and whitiſh on the ſides and belly. Ælian and Opian, however, affirm, that the Ethiopian lions are as black as the men; that, in India, there are lions entirely white, and others ſpotted with different colours, as red, black, and blue. But this ſeems not to be ſupported by any authentic evidence; for Marc-Paul, the Venetian, ſpeaks not of theſe ſpotted lions as if he had ſeen them; and Geſner* properly remarks, that he only followed Ælian. It appears, on the contrary, that there are little or no varieties in this ſpecies; that the lions of Africa and of Aſia are perfectly ſimilar; and that the lions of the mountains differ from thoſe of the plains in ſtature only, and not in colour.

The lion has a mane, or rather long hair which covers almoſt all the anterior parts of his body †, and grows always longer as he advances in age. But the lioneſs, however old, has no mane. The American animal, called *a Lion* by the Europeans, and *Puma* by the natives of Peru, has no mane, and is alſo ſmaller, weaker, and leſs courageous than the true lion. It is not impoſſible, that the mildneſs of this region of ſouth America ſhould have had ſuch influence on the nature of the lion, as to deprive him of his mane, and diminiſh both his courage and his ſtature. But it ſeems to be an abſolute impoſſibility, that

* Geſner, Hiſt. Anim. Quad. 574.

† This mane conſiſts of hair equally ſoft and ſmooth as that of the reſt of the body.

this animal, who inhabits the countries within the Tropics only, and againſt whom Nature appears to have ſhut up every avenue to the north, ſhould have paſſed from the ſouthern regions of Aſia or Africa into America, theſe continents being divided from each other, towards the ſouth, by immenſe oceans. Hence we are led to conclude, that the Puma is not a lion ſprung from thoſe of the Old World, and degenerated by the influence of the climate of America, but that he is an animal peculiar to America, like moſt animals of the New Continent. When the Europeans firſt diſcovered America, they found the quadrupeds, birds, fiſhes, inſects, plants, and almoſt every thing, perfectly different from thoſe of Europe. It was, therefore, neceſſary to denominate the principal objects of this New World. The names given them by the natives were moſtly barbarous, and very difficult to pronounce or to remember. The names of objects were, of courſe, borrowed from thoſe of the European languages, and eſpecially from the Spaniſh and Portugueſe. In this penury of denomination, the ſmalleſt analogy in external figure or in ſtature is ſufficient to make us attribute to unknown objects the names of thoſe with which we are acquainted. This gives riſe to endleſs uncertainties and confuſion, which are ſtill further augmented, not only by giving to the productions of the New World the denominations of thoſe of the Old, but by the continual tranſportation of European plants and animals into

into America. To obviate these difficulties, we ought carefully to distinguish what belongs to the one continent, from what belongs to the other, and to avoid the deceptions originating from improper denominations. We shall perceive the necessity of this discrimination in the subsequent article, where an enumeration of the animals peculiar to both continents shall be given.

M. de la Condamine, whose evidence merits the highest credit, says expressly, that he knows not whether the American animal called *a Lion* by the Spaniards, and *Puma* by the natives of Quito, deserves the name of a lion: He adds, that it is much smaller than the African lion, and that the male has no mane *. Fresier likewise informs us, that the animals called *Lions* in Peru, are very different from those of Africa; that they fly upon the approach of man; and that they are dreadful to the flocks only: He farther remarks, that their head somewhat resembles both the head of the wolf and of the tiger; and that their tail is less than the tail of either of these animals †. We learn, from more ancient relations ‡, that the American lions have no resemblance to those of Africa; that they have neither the stature nor the boldness of the true lion; that they are neither red nor yellow, but of a gray colour;

* Voyage de l'Amerique Meridionale, p. 24.
† Le Voyage de Fresier à la Mer du Sud, p. 132.
‡ Joseph Acosta, Nat. Hist. of the Indies.

colour; that they have no manes, and are accustomed to climb trees. Hence these animals differ from the lion in stature, in colour, in the form of the head, in the length of the tail, in the want of manes, and in their manners and dispositions. Characters so numerous and so essential ought for ever to prevent us from confounding the Puma of America with the genuine lion of Africa or of Asia.

Though this noble animal inhabits the warmest climates only, he can subsist for a great length of time in temperate countries, and, perhaps, with some attention, might even be enabled to propagate. Gesner relates, that lions were brought forth in the menagerie of Florence; and Willoughby tells us, that, in Naples, a lioness that had been impregnated by a lion in the same den, brought forth five whelps at one litter. These examples are rare; but, if true, they prove that lions are not absolute strangers to a temperate climate. None of them, however, exist in the southern parts of Europe: In the age of Homer, there were no lions in the Peloponnesus, although they were then, and even in the days of Aristotle, in Thrace, in Macedonia, and in Thessaly. It is apparent, therefore, that, in all ages, they preferred the hot climates; that they seldom lived in temperate countries; and that they never inhabited the more northern regions. The naturalists above quoted, who speak of lions brought forth at Florence and Naples, are silent as to the time

time of the female's geſtation, the ſize of the new-born whelps, and the quickneſs or ſlowneſs of their growth. Ælian * limits the time of geſtation to two months; but Philoſtratus and Edward Wotten † extend it to ſix. I am inclined to be of the latter opinion; for the lion is an animal of great magnitude; and we know, that, in general, among large animals, the time of geſtation is longer than among the ſmaller ſpecies. The ſame thing takes place with regard to the growth of the body. Both ancients and moderns agree, that new-born lions are very ſmall, being about the ſize of a weaſel ‡, that is, ſix or ſeven inches in length. They muſt, therefore, require ſeveral years before they can grow eight or nine feet long. The young lions are likewiſe ſaid to be two months old before they can walk. Without giving implicit faith to theſe facts, we may, with probability, preſume, that the lion, from the largeneſs of his body, muſt require three or four years in acquiring his full growth, and that he ought to live about ſeven times three or four years, or nearly to the age of twenty-five. The Sieur de St. Martin, maſter of the bull-fights at Paris, aſſures me, that he has kept lions ſixteen or ſeventeen years; and he imagines that they live not above the age of twenty or twenty-two. He has kept others twelve or fifteen years; and it

* Geſner, Hiſt. Quad. p. 575.
† Lib. de Differ. Anim. cap. 80.
‡ Ibid. cap. 80.

it is well known that their lives muſt be abridged, and their conſtitution weakened, by the want of exerciſe, confinement, and chagrin.

Ariſtotle affirms, in two different parts of his works *, that the lioneſs produced five or ſix whelps at the firſt litter, four or five at the ſecond, three or four at the third, and two or three at the fourth; and that, after this laſt litter, which is always the leaſt numerous, ſhe becomes barren. This aſſertion merits no credit; for, in all animals, the firſt and laſt litters are leſs numerous than the intermediate ones. This philoſopher erred, as well as all the naturaliſts who came after him, when he maintained that the lioneſs had two paps only; for it is now certain that ſhe has four. He likewiſe affirms †, that the lion, the bear, and the fox, are brought forth in an unformed ſtate: But it is now paſt a doubt, that theſe creatures are as well formed at birth as any other animals, and that all the members are diſtinctly unfolded. Laſtly, he affirms, that the lions copulate in a reverſed manner ‡; but, from a bare inſpection of the parts of the male, it is evident, that the lion muſt copulate in the ordinary way of other quadrupeds. I have mentioned theſe ſlight errors of Ariſtotle, becauſe the authority of this great man has deceived all the writers

* Ariſt. de Generatione, lib. iii. cap. 2. et 10.

† Ibid. lib. iv. cap. 6.

‡ Hiſt. Anim. lib. v. cap. 2. Linn. Syſt. p. 60. Leo retro mingit et coit.

writers on natural hiſtory ſince his time. What he remarks of the lion's neck being compoſed of one rigid and inflexible bone, has alſo been contradicted by experience; for, in every quadruped, without exception, and even in man, the neck conſiſts preciſely of ſeven vertebræ. It is another general fact, that the necks of carnivorous animals are ſhorter than thoſe of the frugivorous, and particularly of the ruminating ſpecies. But this difference in the length of the neck depends on the largeneſs of each vertebra, and not on their number, which is always the ſame, from the elephant to the mole. With regard to the ſolidity of the lion's bones, which Ariſtotle affirms to have neither marrow nor cavity; to their hardneſs, which he compares to that of flint; and to their property of ſtriking fire with ſteel; theſe blunders ought not to have been repeated by Kolbe *; nor ſhould they have come down to our time; ſince, even in the days of Ariſtotle, they were ridiculed by Epicurus.

The lions are exceedingly ardent in their amours. When the female is in ſeaſon, ſhe is ſometimes followed by eight or ten males †, who inceſſantly roar around her, and engage in the moſt furious combats, till one of them conquers all the reſt, and retires in peaceable poſſeſſion of his mate. The lioneſs brings forth in the ſpring ‡, and produces but once in the year; which ſhows

* Mem. de Kolbe, tom. iii. p. 4.

† Geſner, Hiſt. Quad. p. 575.

‡ Id. ibid.

that

that ſhe is occupied for ſome months in ſuckling and taking care of her young; and, conſequently, that the time of their growing, when they need the aſſiſtance of the mother, is at leaſt ſeveral months.

In theſe animals, all the paſſions, even thoſe of the ſofteſt kind, are exceſſive. The maternal affection of the lioneſs is extreme. Though naturally weaker, and leſs courageous than the lion, whenever ſhe has young, ſhe becomes dreadfully ferocious. She then expoſes herſelf with more boldneſs than the lion; ſhe knows no danger; ſhe attacks, indiſcriminately, men and every other animal; and, after ſlaying them, carries them home to her whelps, whom ſhe ſoon accuſtoms to ſuck the blood and tear the fleſh. She commonly brings forth in places the moſt ſequeſtered and inacceſſible; and, when afraid of being diſcovered, ſhe conceals the tracks of her feet, by returning ſeveral times on her ſteps, or effaces them with her tail. When her anxiety is great, ſhe ſometimes tranſports her young to a different place; and, if the hunters attempt to force them from her, ſhe becomes perfectly furious, and defends them to the laſt extremity.

The lion, it is alledged, has neither the ſenſes of ſmelling nor of ſeeing ſo acute as moſt animals of prey. The light of the ſun ſeems to incommode him; he ſeldom goes abroad in the middle of the day, but makes all his excurſions during

during the night: When he ſees the fires burning around the flocks, he never approaches them. It has alſo been remarked, that he perceives not the odour of other animals at a diſtance; that he hunts by the eye only, and not by the ſcent, like the dog and the wolf, whoſe ſenſe of ſmelling is finer. Even the name of *Guide*, or *Lion's Provider*, has been given to a ſpecies of lynx, which is ſuppoſed to have a piercing eye and exquiſite ſcent; and, it is ſaid, that this lynx always follows or precedes the lion, to point out his prey. We are acquainted with this animal, which, like the lion, inhabits Arabia, Lybia, &c. and which ſometimes follows the lion with a view to pick up what he leaves; for, being ſmaller, and much weaker, he ſhould rather fly from the lion than ſerve him.

The lion, when preſſed with hunger, boldly attacks every animal that comes in his way. But, as he is extremely formidable, and is anxiouſly avoided by every beaſt of the foreſt, he is often obliged to lie concealed in the paths where animals commonly paſs. He lies ſquat on his belly among bruſh-wood, from which he darts with ſuch force, that he often ſeizes his prey at the firſt bound. In the deſerts and foreſts, antelopes and monkeys are his common food, though he takes the latter when upon the ground only; for he climbs not trees like the tiger or the Puma *. He devours as much at a time

* Klein de Quad. p. 82.

as

as will ſerve him two or three days. His teeth are ſo ſtrong, that he breaks bones with eaſe, and ſwallows them along with the fleſh. He is ſaid to ſupport hunger very long. As his temperament is exceedingly hot, he is impatient of thirſt, and drinks as often as he finds water, which he laps like a dog. The tongue of the dog, when lapping, is bended upwards; but that of the lion is bended downward, which occaſions him to drink long, and to loſe much water. He requires about fifteen pounds of raw fleſh every day. He prefers the fleſh of living animals, eſpecially of thoſe whom he ſlays himſelf. He does not willingly eat putrid carcaſſes, and chooſes rather to hunt for a freſh prey than to uſe the remains of a former. Though he commonly feeds upon freſh meat, his breath is very rank, and the odour of his urine is inſupportable.

The roaring of the lion is ſo loud, that, when uttered during the night in the deſerts, it reſembles, by the repetition of echoes, the noiſe of thunder *. This roaring is the ordinary voice of the lion; for, when enraged, he utters a ſhort, and ſuddenly repeated cry. But the roaring is a prolonged cry, a kind of a deep-toned grumbling, mixed with a ſharp vibrating noiſe. He roars five or ſix times in the day, and oftener before rain †. When enraged, his

* Voyages de la Boulaye-le-Gouz, p. 320.

† Theſe facts I learned from the Sieur Saint-Martin, maſter of the bull-fights, who has kept ſeveral lions.

cry is ſtill more terrible than his roaring. He then beats his ſides and the earth with his tail, agitates his mane, moves the ſkin of his face, and his large eye-brows, ſhows his dreadful tuſks, and thruſts out his tongue, which is armed with prickles ſo hard, that it alone is ſufficient to tear the ſkin and the fleſh, without the aſſiſtance of either teeth or claws. His ſtrength lies more in the head, jaws, and fore-legs, than in the poſterior parts of his body. He ſees in the night, like the cats. His ſleep is ſhort, and he is eaſily awaked. But it is a miſtaken notion, that he ſleeps with his eyes open.

The ordinary pace of the lion is bold, grave, and ſlow, though always oblique. His courſe conſiſts not of equal movements, but is performed by leaps and bounds; and his motions are ſo briſk, that he cannot inſtantly ſtop, but generally ſurpaſſes his aim. When he leaps on his prey, he makes a ſpring of twelve or fifteen feet, falls above the victim, ſeizes it with his fore-feet, tears it in pieces with his claws, and then devours it with his teeth. While young and nimble, he lives by hunting, and ſeldom quits the deſerts or the foreſts, where he finds plenty of wild animals for his ſubſiſtence. But, when he grows old, heavy, and leſs fit for the exerciſe of hunting, he approaches frequented places, and becomes more dangerous to man and the domeſtic animals. It has, indeed, been remarked, that, when he ſees men and animals together, he at-

tacks the latter, and never the former, unleſs any perſon ſtrikes him; for, in this caſe, he is wonderfully alert in diſtinguiſhing the man who hurts him; and he inſtantly quits his prey to take vengeance on the offender. It is alledged, that he prefers the fleſh of the camel to that of all other animals. He is likewiſe very fond of young elephants. As they are unable to reſiſt him till their tuſks are grown, he accompliſhes his purpoſe with eaſe, unleſs the mother come to their aſſiſtance. The elephant, the rhinoceros, the tiger, and the hippopotamus, are the only animals which can reſiſt the fury of the lion.

This animal, however formidable, is hunted with large dogs, ſupported by men on horſeback, who diſlodge him, and make him retire. But both the dogs and the horſes require to be previouſly trained; for moſt animals tremble and fly from the odour of the lion. His ſkin, though of a cloſe and firm texture, reſiſts neither a ball nor a javeline. He is ſeldom, however, killed with a ſingle blow. He is often taken, as we take wolves, by making him fall into a deep pit, covered with limber materials, and upon which a live animal is fixed. The lion becomes gentle as ſoon as he is ſeized; and, if advantage be taken of the firſt emotions of his ſurpriſe and ſhame, he may be chained, muzzled, and conducted at pleaſure.

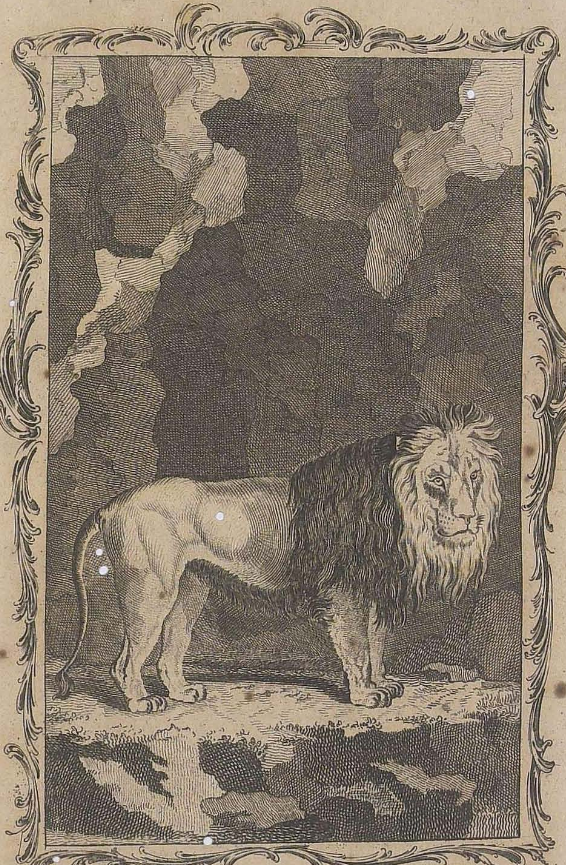
The fleſh of the lion has a ſtrong and diſagreeable flavour; yet it is frequently eat by the

 Indians

Indians and Negroes. The ſkin, which was formerly the robe of heroes, ſerves theſe people for a mantle or a bed. They alſo preſerve the greaſe, which is of a penetrating nature, and even of ſome uſe in medicine *.

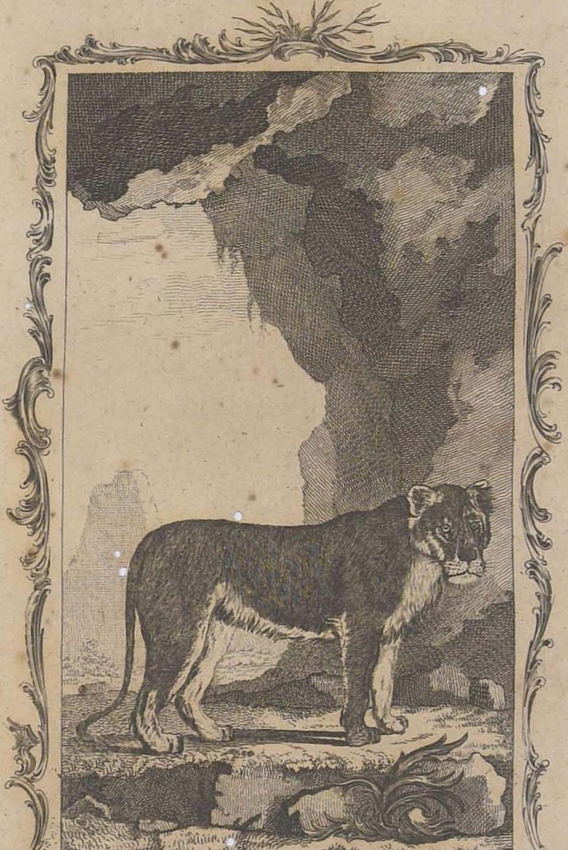
* See l'Hiſt. Nat. des Animaux, par Meſſ. Arnaud de Nobleville et Salerne, tom. v. part. ii. p. 112.

Plate CX.



LION.

Plate CXI.



A Bell Sculp.

LIONESS.

OF TIGERS.

TIGER being a generic name given to ſeveral animals of different ſpecies, we ſhall begin with diſtinguiſhing them from each other. The leopards and panthers, which are ſo often confounded, have both been called *Tigers* by moſt travellers. The ounce, a ſmall ſpecies of panther, which is eaſily tamed, and uſed for hunting in the Eaſt, has been miſtaken for the panther, and received the general denomination of *Tiger*. The lynx, and the lion's provider, by the Turks called *Karackoulah*, and by the Perſians *Siyahguſh*, have ſometimes alſo received the appellation of *Panther* or of *Ounce*. All theſe animals are common in Africa, and in the ſouthern regions of Aſia. But the true tiger is a rare animal, little known to the ancients, and not well deſcribed by the moderns. Ariſtotle makes no mention of the tiger: Pliny only obſerves of him, that he is an animal of aſtoniſhing fleetneſs *; and adds, that he was much more rarely to be met with than the panther, becauſe Auguſtus firſt preſented a tiger to the Romans at the dedication of the theatre of Marcellus, while Scaurus the Ædile preſented 150 panthers †, and afterwards Pompey exhibited 410, and Auguſtus

* Animal tremendæ velocitatis; *Plin. Hiſt. Nat. lib.* viii. *c.* 18.

† Plin. Hiſt. Nat. lib. viii. c. 17.

420, at the public ſpectacles of Rome. But Pliny gives not a ſingle mark by which the tiger is to be diſtinguiſhed: Oppian * and Solinus, who wrote after Pliny, appear to have been the firſt who take notice, that the tiger is characterized by long ſtripes, and the panther by round patches. This is indeed one of the marks which diſtinguiſh the true tiger not only from the panther, but from ſeveral other animals which have been called tigers. Strabo † quotes Magaſthenus on the ſubject of the true tiger, who tells us, that, in India, there are tigers twice as large as the lion. Thus the only information we have from the ancients, concerning this remarkable animal, is that he is extremely ferocious and fleet; that his body is marked with long ſtripes; and that he exceeds the lion in magnitude. The moderns, as Geſner and other naturaliſts, who mention the tiger, have added nothing to the little that had been obſerved by the ancients.

All thoſe ſkins which have ſhort hair and roundiſh and diſtinct ſpots, have been called tigers ſkins; and travellers, deceived by this falſe denomination, have indiſcriminately named every ferocious animal, thus ſpotted, by the appellation of *tigers*. The academy of ſciences were like-

* See Oppian, lib. i. de venatione, ubi ait: Orynges alios decorari tæniis oblongis tigrium inſtar, alios vero rotundis ut panthera.—Tigres, ait Solinus, beſtias inſignes maculis notæ, et pernicitas memorabiles reddiderunt, fulvo nitent, hoc fulvum nigricantibus ſegmentis inter-undatum.

† Strab. lib. xv.

wiſe

wiſe miſled by this prejudice; and, to all the ſpotted animals they diſſected, though very different from the genuine tiger, they have given the ſame denomination.

The moſt general cauſe of the multiplication of equivocal and vague terms in natural hiſtory has ariſen, as ſhall be more fully ſhown in the following article, from the neceſſity of giving names to the unknown productions of the New World. Many animals, merely from ſome ſlight reſemblances to thoſe of the Old Continent, though very different, both in ſpecies and diſpoſitions, have had the ſame names impoſed on them. The error of calling every ſpotted animal a *tiger*, began in Europe, and was tranſported to America, where it was doubly augmented. For ſpotted quadrupeds being diſcovered in this new country, they were inſtantly called *tigers*, though they neither belonged to the ſpecies of the true tiger, nor to any of thoſe Aſiatic or African animals which had falſely received that name. Hence, in the place of one ſpecies of tiger, their number has been increaſed to nine or ten; and, conſequently, the hiſtory of theſe different animals has been greatly embarraſſed, what belongs to one ſpecies being often aſcribed to another.

To diſpel the confuſion ariſing from theſe falſe denominations, eſpecially among the animals which have been commonly called tigers, I ſhall give a comparative enumeration of quadrupeds, in

which

which I ſhall diſtinguiſh, 1. Thoſe which are peculiar to the Old World, and exiſted not in America upon its firſt diſcovery; 2. Thoſe which are peculiar to the New, and were unknown in the Old World; 3. Thoſe which are common to both continents, without being tranſported by men from the one to the other. For this purpoſe, we muſt collect into one view what lies ſcattered in the works of the firſt hiſtorians of America.

ANIMALS PECULIAR TO THE OLD WORLD.

As the largeſt animals are beſt known, and liable to the feweſt uncertainties, we ſhall, in this enumeration, trace them nearly in the order of their magnitude.

Elephants are peculiar to the Old World; the largeſt are produced in Aſia, and the ſmalleſt in Africa. They are natives of the warmeſt regions; and, though they are capable of exiſting, yet they cannot multiply, in temperate climates. Even in their native country, they do not propagate, after being deprived of their liberty. Though entirely confined to the warm regions of the Old Continent, their numbers are conſiderable. In America, there is not an animal that can be compared to the elephant, either with regard to figure or magnitude.

The ſame remark is applicable to the rhinoceros, whoſe ſpecies is much leſs numerous than that of the elephant. He is peculiar to the deſerts

ſerts of Africa, and to the foreſts of the ſouthern regions of Aſia; and no American animal has the ſmalleſt reſemblance to him.

The hippopotamus inhabits the banks of the large rivers of India and Africa. His ſpecies is perhaps ſtill leſs numerous than that of the rhinoceros; and he is not to be found in America, nor in the temperate climates of the Old World.

The camel and dromedary, which are ſo common in Aſia, in Arabia, and in all the eaſtern regions of the Old Continent, were equally unknown in America as the elephant, the rhinoceros, and the hippopotamus. The appellation of *camel* has been given to the Lama* and Pacos † of Peru, though theſe animals are ſo different from the camel, that, by ſome, they have been called *ſheep*, and by others *camels* of Peru, and though the pacos has nothing in common with our ſheep, but the wool, and the lama reſembles the camel by the length of its neck only. The Spaniards formerly tranſported real camels to Peru ‡: But the climate of this New World was not favourable to theſe animals; for, al-

* Camelus glama, corpore lævi, topho pectorali; *Linn. Syſt.* *p.* 91. Camelus pilis breviſſimis veſtitus; *Briſſon. Regn. Anim.* *p.* 56. Ovis Peruana; *Marcg. Hiſt. Braſil. p.* 243.

† Camelus Pacos, tophis nullis, corpore lanato; *Linn. Syſt. Nat. p.* 91. Camelis pilis prolixis toto corpore veſtitus; *Briſſon. Regn. Anim. p.* 57. Ovis Peruana pacos dicta; *Marcg. Hiſt. Braſil. p.* 244.

‡ See Hiſt. Nat. des Indes par Joſ. Acoſta, p. 44—208. l'Hiſt. des Incas, tom. ii. p. 266.

though

though they produced, their numbers were never confiderable.

The giraffe *, or camelopard, an animal remarkable for its height, and the length of its neck and fore-legs, is not to be found in America. It is a native of Africa, particularly Ethiopia, and has never fpread beyond the Tropics into the temperate regions of the Old World.

We have feen, in the preceding article, that the lion exifts not in America, and that the Puma of Peru is an animal of a different fpecies. We fhall likewife find, that the tiger and panther are peculiar to the Ancient Continent, and that the animals of South America, which have received thefe names, are different fpecies. The true tiger is a terrible animal, and perhaps more to be dreaded than the lion himfelf. His ferocity is tremendous; and we may judge of his ftrength by his fize, which is commonly from four to five feet high, by nine, ten, thirteen or fourteen feet long, without comprehending the tail. His fkin is not variegated with round fpots, but with black bands on a yellow ground, which extend tranfverfely over the whole body, and form rings on his tail from one end to the other. Thefe characters are fufficient to diftinguifh the tiger from all the carnivorous animals of the New World, the largeft of which fcarcely exceed the fize of our maftiffs or grey-hounds.

* Giraffa quam Arabes Zurnapa, Græci et Latini Camelopardalus nominant; *Bellon, Obf. p.* 118.

The

The leopard and panther of Africa and Aſia, are not nearly ſo large as the tiger, and yet they are much larger than the rapacious animals of South America. Pliny, whoſe teſtimony cannot be queſtioned, as panthers were in his time expoſed in great numbers at the public ſhews of Rome, points out the eſſential characters of this animal, by telling us, that his hair is whitiſh, and every where variegated with black ſpots, reſembling eyes *: He adds, that the female differs from the male in nothing but the ſuperior whiteneſs of her hair. The American animals which have been called *tigers*, have a greater ſimilarity to the panther: From the latter, however, they differ ſo much, that it is eaſy to perceive they belong not to the ſame ſpecies.

The firſt is the *jaguar*, *jaguara*, or *janowara*, and is a native of Guiana, Braſil, and other regions of South America. Ray, with ſome plauſibility, named this animal the *pard* †, or *lynx* of Braſil. The Portugueſe called him *once* or *anca*, becauſe they had given that name improperly, firſt to the lynx, and afterwards to the ſmall panther of India. The French, without reaſon, have called it a *tiger* ‡; for it has no affinity to that

* Pantheris in candido breves macularum oculi varias . . . et pardos, qui mares ſunt appellant in eo omni genere creberrimo in Africa Syriaque, quidam ab iis Pantheras candore ſolo diſcernunt, nec adhuc aliam differentiam inveni; *Plin. Hiſt. Nat. lib.* viii. *cap.* 17.

† Pardus an Lynx Braſilienſis, jaguara dicta; *Marcgrav. Ray, Synopſ. Quad. p.* 166.

‡ Gros tigre de la Guiane; *Deſmarchais, tom.* iii. *p.* 299. Le Tigre d'Amerique; *Briſſon. Regn. Anim.* p. 270.

animal.

animal. It differs alſo from the panther in the ſize of its body, the figure and ſituation of its ſpots, the colour and length of its hair, which is criſped when young, and is always rougher than that of the panther. Neither does it reſemble this animal in its diſpoſitions and manners; it is more ſavage, and cannot be tamed. Theſe differences, however, hinder not the jaguar of Braſil from reſembling the panther more than any other animal of the Old World. The ſecond we ſhall call *couguar*, by contracting the Braſilian name *cuguacu-ara* *, pronounced by the natives *Cougouacou-ara*. The French have, with ſtill more impropriety, called this animal the *red tiger*. It reſembles the true tiger in nothing, and differs very much from the panther, its hair being of a red colour, and without ſpots. The form of the head is likewiſe different, and the muzzle is longer than thoſe of the tiger and panther. A third ſpecies, which has alſo obtained the name of *tiger*, and is equally removed from that ſpecies with the preceding animals, is the jaguarete †. This animal is nearly of the ſame ſize with the jaguar, and reſembles him in natural diſpoſitions; but differs from him in ſome external characters. He has been called the *black tiger*, becauſe his hair is blackiſh, interſperſed

* Cuguaca-ara; *Piſon. Hiſt. Nat. Ind. p.* 104. Le Tigre rouge; *Barrere, Hiſt. Fr. Equin. p.* 165.; *Briſſon, Regn. Anim. p.* 272.

† Juguarete; *Piſon. Hiſt. Nat. Ind.* p. 103. Once, a ſpecies of tiger; *Deſmarchais, tom.* iii. *p.* 300. The black tiger; *Briſſon. Regn. Anim. p.* 271.

with

with ſpots ſtill blacker than thoſe of the jaguar. Beſide theſe three ſpecies, and perhaps a fourth, commonly called tigers, there is another American animal that has a greater reſemblance to the tiger, namely, the mountain cat, which is related both to the cat and panther, and is more properly marked by this compound appellation, than by its Mexican name *tlacooſclotl**. It is ſmaller than the jaguar, jaguarete, or couguar, but larger than the wild cat, which it reſembles in figure, though its tail is much ſhorter, and its hair variegated with black ſpots, which are oblong on the back, and circular on the belly. The jaguar, jaguarete, couguar, and mountain cat, are therefore American animals, which have improperly been named *tigers*. We have ſeen the couguar and mountain cat alive, and know them to be very different in ſpecies; but they are ſtill more different from that of the tiger and panther. With regard to the puma and jaguar, it is evident, from the deſcriptions of thoſe who have ſeen theſe animals, that the puma is not a lion, nor the jaguar a tiger. Thus we may pronounce with confidence, that the lion, the tiger, and even the panther, are not to be found in America; neither are the elephant, the rhinoceros, the hippopotamus, the giraffe, nor the camel. All theſe ſpecies require a warm climate, for the purpoſe of propagation; and, having never inhabited nor-

* Hernandez Hiſt. Mex. p. 512. Chat-pard; *Hiſt. de l'Acad. des Sciences, tom.* iii. *part.* 1. p. 109; *Briſſon, Regn. Anim. p.* 273.

thern

thern regions, they could not convey themſelves to America. This general fact is too important not to be ſupported by every proof that can be produced: We ſhall, therefore, continue our compariſon of the animals of the Old World with thoſe of the New.

Every man knows that horſes, when firſt tranſported to America, ſtruck the natives not only with ſurpriſe, but with terror; and that theſe animals have thriven and multiplied as faſt in America as in Europe *. The ſame remark applies to the aſs, from which mules have been produced, that are more uſeful for every kind of carriage than the Lama, particularly in the mountainous parts of Chili and Peru.

The zebra † is an animal peculiar to the Old World, and which, perhaps, has never been ſeen in the New. It ſeems to be confined to a particular climate, and is found no where but in that part of Africa which extends from the Equator to the Cape of Good Hope.

Horned cattle were found neither in the iſlands nor on the continent of South America. Soon after the diſcovery of theſe countries, bulls and cows were tranſported from Europe by the Spaniards. In 1550, they for the firſt time laboured the ground with oxen in the valley of Cuſco ‡. Theſe animals multiplied prodigiouſly on the

* Hiſt. Gen. des Antilles, par Tertre, tom. ii. p. 289.

† Zebra; *Ray, Synopſ. Quad.* p. 69. *Edwards,* p. 27. *Briſſon. Regn. Anim.* p. 101. Aſne Sauvage; *Kolbe, tom.* iii. p. 22.

‡ Hiſt. des Incas, tom. ii. p. 266.

Continent,

Continent, as well as in the iſlands of St. Domingo, Cuba, &c.; and even became wild in ſeveral places. The ſpecies of horned cattle, which we call Biſon, found in Mexico, Louiſiana *, &c. belongs not to the European race. The biſon exiſted in America before our horned cattle were tranſported thither. He is ſo different from the latter, that he may be regarded as conſtituting a ſeparate ſpecies. He has a fleſhy protuberance between his ſhoulders; his hair is ſofter than wool, longer on the fore-part of his body than the hind, and curled upon the neck and along the ſpine of the back. It is of a brown colour, obſcurely marked with ſome whitiſh ſpots. The biſon has, beſides, ſhort legs, which, like the head and neck, are covered with long hair. The male has a long tail, terminating in a buſh of hair, like that of the lion. Though theſe diſtinctions have appeared to me, as well as to all other naturaliſts, ſufficient to conſtitute the biſon and our horned cattle of different ſpecies, yet I will not preſume to determine this point; becauſe the eſſential characteriſtic of animals being of the ſame ſpecies is the faculty of a regular and uninterrupted propagation of their kinds; and this fact, with regard to the biſon and our horned cattle, has never hitherto been ſubjected to the teſt of experiment. Monſ. de la Nux, counſellor of the royal council of the iſland of Bourbon, has favoured me with a letter, dated 9th October 1759, in which he informs me, that the biſon propagates

* Hiſt. de Nouveau Monde, par Jean Laet, liv. x. ch. 4.

with the common horned cattle; and, it were to be wiſhed, that perſons living in theſe countries would imitate the example of this gentleman, in making experiments upon animals. It would be eaſy for the inhabitants of Louiſiana to try to make the American biſon copulate with the European cow, or the European bull with the female biſon. Such commixtures might, perhaps, be fruitful; and, in that caſe, it would be aſcertained that the European horned cattle, the bunch-backed ſpecies of the iſland of Bourbon, the Eaſt-India bull, and American biſon, conſtitute but one ſpecies. From the experiments of Monſ. de la Nux, it is apparent, that the bunch is not an eſſential character, becauſe, after ſome generations, it entirely vaniſhes. Beſides, I have diſcovered that this bunch or protuberance which appears on the camel as well as the biſon, is a common, but not a permanent character, and ought to be regarded as an accidental variety, depending, perhaps, on the conſtitution of the body; for I have ſeen a meagre ſickly camel which had no veſtige of a bunch. The other character of the American biſon, namely, long ſoft hair, appears to be a difference ariſing only from the influence of climate, in the ſame manner as we obſerve its effect on our goats, cats, and rabbits, when compared to thoſe of Angora, which, though very different with regard to their hair, are nevertheleſs of the ſame ſpecies. Hence it is probable (eſpecially if the American biſon produces with European cows) that our horned

cattle

cattle muft formerly have paffed from the northern regions contiguous to thofe of North America, and that, having afterwards fpread into the temperate regions of the New World, they affumed with time the impreffions of the climate, and became real bifons. But, till this effential character of generation be fully eftablifhed, we muft ftill conclude, that our cow and bull is a fpecies peculiar to the Ancient Continent, and exifted not in America till they were tranfported thither.

America has ftill lefs pretenfions to the fheep*. Thefe animals were tranfported from Europe, and have fucceeded both in the warm and temperate climates. But, though equally prolific, they are commonly more meager †, and their flefh lefs fucculent and tender than that of the European fheep. The climate of Brafil feems to be moft favourable to them; for that is the only region of the New World where they become exceffively fat ‡. Both European and African fheep have been tranfported to Jamaica ||, and have equally fucceeded. Thefe two fpecies belong entirely to the Old Continent.

Neither is the goat a native of America. The numerous flocks now found there have all proceeded from thofe which were tranfported. At Brafil, the goat has not multiplied fo faft as the

* Hift. des Incas, tom. ii. p. 32'. † Pifon. Marcgrav.
‡ Hift. de Nouv. Monde, par Jean Laet, liv. xv. chap. 15.
|| Ovis Guineenfis feu Angolenfis; *Marcgrav. lib.* vi. *cap.* 10. *Ray, Synopf. Quad.* p. 75. *Sloane's Hift. of Jamaica.*

ſheep *. When firſt carried to Peru by the Spaniards, goats were ſo rare, that they ſold for 110 ducats a-piece †; but they afterwards became ſo numerous, that they brought little more than the value of the ſkin. In that country, they produce three, four, and ſometimes five kids at a time, while, in Europe, they produce one or two only. The large and ſmall American iſlands are equally repleniſhed with goats as the Continent. They have even been carried by the Spaniards to the iſlands of the South Sea; and, in the iſland of Juan Fernandez ‡, particularly, they have been extremely fertile. But, as they furniſhed proviſions to the pirates who afterwards infeſted theſe ſeas, the Spaniards reſolved to extirpate them from the iſland; and, for this purpoſe, left a number of dogs, which, having likewiſe multiplied in their turn, deſtroyed the goats in every acceſſible part of the iſland, and became ſo ferocious, that they actually attacked men.

The wild boar, the domeſtic hog, and the hog of China, which conſtitute but one ſpecies, and multiply ſo plentifully in Europe and Aſia, are not natives of America. The Mexican hog, which has an aperture in its ‖ back, is the animal in America that approaches neareſt to the common ſpecies. I have ſeen it alive, and have attempted, in vain, to make it produce with the

* Hiſt. de Nouv. Monde, lib. xv. cap. 15.

† Hiſt. des Incas, tom. ii. p. 322.

‡ Anſon's Voyage.

‖ Tajacu; *Piſon. Ind.* p. 98.—Tajacu, aper Mexicanus moſchiferus; *Ray, Synopſ. Quad.* p. 97.—Le Sanglier du Mexique; *Briſſon. Regn. Anim.* p. 111

European

European ſow. Their characters, beſides, are ſo different, that there is reaſon to pronounce them of a different ſpecies. The hogs tranſported from Europe to America have ſucceeded better, and multiplied faſter, than the ſheep or goat. The firſt ſwine, ſays Garcilaſſo *, ſold at Peru ſtill dearer than the goats. The fleſh of the ox and ſheep, according to Piſo †, is not ſo good at Braſil as in Europe; but the hogs are better, and multiply faſter; and Laet remarks ‡, that thoſe of St. Domingo have alſo improved ſo as to exceed thoſe of Europe. In general, it is allowed, that, of all domeſtic animals tranſported from Europe to America, the hog has moſt univerſally ſucceeded. In Canada, as well as in Braſil, which includes the coldeſt and warmeſt climates of the New World, the hogs produce and multiply, and their fleſh is equally good. The goat, on the contrary, has multiplied in the warm or temperate countries only, and cannot maintain the ſpecies in Canada: It is for this reaſon, that, though numbers of them are brought from Europe, they ſtill continue to be rare in that country. The aſs, which multiplies in Braſil, Peru, &c. is unable to multiply in Canada, where neither mules nor aſſes, though many couples of the latter have been from time to time tranſported thither, are to be ſeen. The cold ſeems to deprive them of that vigour of conſtitution, that

* Hiſt. des Incas, tom. ii. p. 266.

† Piſon. Hiſt. Nat. Braſil.

‡ L'Hiſt. de Nouveau Monde, par Jean Laet, chap. iv. p. 5.

 natural

natural ardour, by which, in warm climates, they are ſo much diſtinguiſhed from other animals. Horſes have multiplied nearly in an equal manner over all the regions of America. They appear to have diminiſhed in ſize only *. But that is common to them with all the other animals brought from Europe to America; for, in Canada, the ox, the goat, the ſheep, the hog, the dog, are ſmaller than in France; and, what is ſtill more ſingular, all the native American animals are, in general, much ſmaller than thoſe of the Old Continent. In this New World, Nature ſeems to have operated upon a ſmaller ſcale: Man alone has been copied after the ſame model. But, before mentioning the facts which ſupport this obſervation, we muſt finiſh our enumeration.

The hog, as we have ſeen, is not a native of America, but was tranſported thither; and he has not only multiplied there in a domeſtic ſtate, but has become wild in many places, where he multiplies in the woods, like our wild boars †, without the aid of man. A ſpecies of hogs, different from thoſe of Europe, have likewiſe been tranſported from Guiney to Braſil ‡, where they have increaſed. This Guiney hog, which is ſmaller than the European kind, has long pointed ears, and a tail that almoſt trails on the ground. It is not covered with briſtles, but with ſhort hair,

* Sir Hans Sloane's Hiſt. of Jamaica.
† L'Hiſt. Nat. des Indes, par Joſeph Acoſta, p. 44.
‡ Piſon. Hiſt. Nat. Braſil.

and

and appears to be a diſtinct ſpecies from that of Europe; for we have never learned from Braſil, where the ardour of the climate favours every kind of propagation, that the two ſpecies have intermixed, or even produced mules.

The dog, whoſe races are ſo various, and ſo universally diffuſed, appears not in America but by a kind of ſpecimens, which it is difficult to compare with the whole ſpecies. At St. Domingo, there were ſmall animals called *goſques*, which reſembled little dogs. But Garcilaſſo affirms, that they had no dogs ſimilar to thoſe of Europe. He adds *, that the European dogs, which had been tranſported to Cuba and St. Domingo, and became wild, had diminiſhed the number of cattle, which had alſo become wild; and that theſe dogs hunt in packs of ten or twelve, and are equally deſtructive as the wolves. There are no genuine dogs, ſays Joſeph Acoſta †, in the Weſt Indies, but only animals reſembling ſmall dogs, called *alcos* in Peru, and which attached themſelves to their maſters, and had nearly the ſame diſpoſitions with the dog. If Father Charlevoix ‡ merits credit, who quotes no authority, 'the *goſchis* 'of St. Domingo were ſmall dumb dogs, which 'ſerved for the amuſement of the ladies ||. They

* L'Hiſt. des Incas, tom. ii. p. 322.

† L'Hiſt. Nat. des Indes, p. 46.; l'Hiſt. du Nouveau Monde, par Jean Laet, lib. x. chap. 5.

‡ L'Hiſt. de l'Iſle Saint Domingue, par le Pere Charlevoix, tom. i. p. 35.

|| Were there any ladies in St. Domingo when it was diſcovered?

'were alſo uſed for hunting other animals by 'the ſcent. They made excellent eating *, and 'were a great ſupply to the Spaniards when the 'firſt famines happened; ſo that, if great numbers 'had not afterwards been brought from the Con-'tinent, the ſpecies would have been exhauſted. 'There were ſeveral kinds of them; the hair of 'ſome was ſmooth and ſhining; others had their 'bodies covered with very ſoft wool; and the 'greateſt number had only a kind of tender, 'thin down. The varieties in their colour ſur-'paſſed even thoſe of our dogs.'

If ever this ſpecies of *goſchis* exiſted, with the qualities aſcribed to it by Father Charlevoix, why has it been paſſed over in ſilence by other authors? And why do not theſe animals, which, according to him, were not only ſpread over the iſland of St. Domingo, but ſeveral places of the Continent, no longer ſubſiſt? Or, if they do ſubſiſt, why have they loſt all their beautiful peculiarities? It is probable, that the *goſchis* of Charlevoix, whoſe name he never met with but in the writings of Father Pers, is the *goſques* of Garcilaſſo. Perhaps, likewiſe, the *goſques* of St. Domingo, and the alco of Peru, are the ſame animal; and it ſeems to be certain, that this animal is more allied to the European dog, than any other American quadruped. Some authors have regarded it as the genuine dog. Jean Laet † ſays,

* The fleſh of the dog is by no means good for eating.

† L'Hiſt. du Nouveau Monde, par Jean Laet, lib. xv. chap. 15.

in

in expreſs terms, that, upon the diſcovery of the Weſt Indies, they employed for hunting a kind of ſmall dogs, which were abſolutely mute. It was remarked, in the hiſtory of the dog *, that, in warm climates, he loſes the faculty of barking. But this loſs is ſupplied by a ſort of howling; and they are never, like theſe American animals, perfectly mute. Dogs tranſported from Europe have thriven almoſt equally well in the hotteſt and coldeſt climates of America, and they are more eſteemed by the ſavages than any other animal †. In warm countries they have loſt their voice; in cold regions, their ſize is diminiſhed; and almoſt every where, their ears have become erect. Hence they have degenerated, or rather mounted up to their primitive race, which is that of the ſhepherd's dog, which has erect ears, and barks leſs than any other kind. Dogs may, therefore, be regarded as belonging ſolely to the Old Continent, where their nature and talents are unfolded in the temperate regions only, and where they ſeem to have been variegated and brought to perfection by the care of man; for, in all uncivilized and very hot or very cold countries, they are equally ſmall, ugly, and almoſt mute.

The hyæna ‡, which is of the ſize of the

* See vol. iv. art. *Dog*.

† L'Hiſt. du Nouveau Monde, par Jean Laet, liv. xv. chap. 15. p. 513.

‡ *Hyæna* Ariſtotelis; *Hiſt. Anim.*—*Dabuch* Arabum; *Charleton Exer. p.* 15.

wolf,

wolf, was known to the ancients. It is remarkable for an orifice and glands, ſituated, as in the badger, between the anus and tail, from which proceeds a ſtrong fetid odour. He is likewiſe remarkable for his ſtrong mane, which runs along the neck and ſhoulders, and for an enormous voracity, which incites him to dig up bodies from the graves, and devour the moſt putrid fleſh. This horrible creature is found in Arabia only, and other ſouthern provinces of Aſia. It exiſts not either in Europe or in the New World.

The jackal, which, of all animals, makes the neareſt approach to the dog, though he differs in eſſential characters, is very common in Armenia and Turkey, and is likewiſe found in ſeveral other provinces of Aſia and Africa *: But he is an abſolute ſtranger to America. He is remarkable for the colour of his hair, which is a brilliant yellow: He is about the ſize of a fox; and, though the ſpecies is very numerous, it has never reached Europe, nor even the north of Aſia.

The genet †, which is a native of Spain, would never have paſſed undiſcovered, if it had exiſted in the New World. But, as no American hiſtorians or travellers make any mention of him, he muſt be conſidered as peculiar to the Old Continent. He inhabits the ſouthern parts of Europe, and thoſe of Aſia under the ſame latitude.

* See the art. *Jackal*.

† See the art. *Genet*.

Though

Though the civet has been ſaid to be found in New Spain, yet it ſeems not to be the civet of Africa and the Indies, from which we derive the muſk, and which is mixed and prepared with that of the animal called *biam* in China; for we conſider the true civet to be an animal peculiar to the ſouthern regions of the Old Continent, which has never reached the northern provinces, and could not paſs over to the New.

Cats as well as dogs were entire ſtrangers to America; and, though I have quoted a paſſage, from which it appears that a perſon in the train of Chriſtopher Columbus killed a wild cat in thoſe new regions *; yet I am perſuaded that theſe animals had then no exiſtence there. I was not, at that time, equally ſkilled in the many abuſes made of names; and I acknowledge, that I am not yet ſo well acquainted with animals, as to diſtinguiſh them clearly in the falſe or miſapplied appellations given them by travellers. Neither is this ſurpriſing, ſince our nomenclators, whoſe reſearches have been entirely directed to this point of view, inſtead of throwing light upon the ſubject, have increaſed the confuſion, by other names and phraſes adapted to their arbitrary arrangements, which are always more deceitful than actual inſpection. The natural propenſity of comparing objects, which we ſee for the firſt time, to thoſe already known,

* See vol. iv. art. *Cat*.

joined

joined to the almoſt inſuperable difficulty of pronouncing American names, are the two cauſes of this miſapplication of terms, which has been productive of ſo many errors. It is eaſier, for example, to call a new animal *a wild boar* *, or *a black hog*, than to pronounce his American name, *quauh-coyamelt*; to call another an *American fox* †, than to preſerve his Braſilian name *tamandua-guaca*; to call thoſe animals *Peruvian ſheep* or *camels*, which, in the language of the natives, are denominated *pelou jehialt-oquitli* ‡. In the ſame manner, the *cabiai*, *cabionara*, or *capybara*, is called the *water-hog* §, though it be an animal very different from the hog; and the *carigueibeju* is called *an otter*. The ſame confuſion has been introduced into almoſt all the animals of the New World, whoſe names were ſo ſtrange and barbarous to the Europeans, that they endeavoured to beſtow others upon them derived from reſemblances, ſometimes happily imagined, with the animals of the Old Continent, but often borrowed from relations too remote to juſtify ſuch denominations. Five or ſix ſpecies of ſmall animals were regarded as hares, for no other

* See le Voyage de Deſmarchais, tom. iii. p. 112; l'Eſſai ſur l'Hiſt. Nat. de la France Equinoxiale, par Barrere; l'Hiſt. de Mexique, par Hernandes, p. 637; l'Hiſt. de la Nouvelle Eſpagne, par Fernandes, p. 8.

† Deſmarchais, tom. iii. p. 307.

‡ Hernandes, Hiſt. du Mexique, p. 660.

§ Deſmarchais, tom. iii. p. 314.

reaſon,

reaſon, but becauſe, like the latter, their fleſh was very good. An animal without horns was called *a cow*, or *an elk*, which the Americans denominated *tapiierete* at Braſil, *manipouris* at Guiana, and it was called *anta* by the Portugueſe, though it had no other relation to the cow or elk than a ſlight reſemblance in the form of the body. Some others compared the *pak* or *paca* to the rabbit, and others to a hog of two months old *. Some conſidered the *oppoſſum* as a rat, and called it *the wood-rat*; and others took it for a ſmall *fox* †. But it is unneceſſary here to expoſe, at greater length, the falſe denominations beſtowed by travellers, hiſtorians, and nomenclators, upon the American animals; becauſe I ſhall endeavour, in a ſubſequent part of this diſcourſe, to point them out and to correct them.

We have ſeen, that all our domeſtic animals, and the largeſt ſpecies of the wild animals of Africa and Aſia, had no original exiſtence in the New World. Several ſpecies likewiſe, of leſs conſideration, belong not to America, which we ſhall enumerate as ſuccinctly as poſſible.

The antelopes, whoſe ſpecies are numerous, and of which ſome inhabit Arabia, others Africa, and others the Eaſt Indies, require a warm climate for ſubſiſting and multiplying. They

* L'Hiſt. du Nouveau Monde, par Jean Laet, p. 484.

† Klein de Quad. p. 59. Barrere, Hiſt. de la France Equinoxiale, p. 166.

never

never ſtretched into the northern parts of Europe, ſo as to enable them to paſs over to America. Hence theſe African and Aſiatic ſpecies were not found in the New World. The Barbary antelope ſeems indeed to have been tranſported thither, and Hernandes calls it *algazel* ex Aphrica*. The animal of New Spain, called by the ſame author *temamaçame*, by Seba *cervus*, by Klein *tragulus*, and by Briſſon, *the antelope of New Spain*, appears to be a different ſpecies from all the antelopes of the Old Continent.

It is natural to imagine, that the chamois goat, which delights in the Alpine ſnows, would not avoid the frozen regions of the north, and might, therefore, have paſſed over to America; yet it is not to be found there. This animal ſeems not to affect a peculiar climate, but a particular ſituation. He is fond of the ſummits of the Alps, Pyrennees, &c.; and, inſtead of ſpreading farther, he has never deſcended to the plains at the foot of thoſe mountains. This is not the only animal which dwells perpetually in the ſame climate and ſituation. The marmot, the wild goat, the bear, and the lynx, are alſo mountain animals, and rarely appear in the plains.

The buffalo, which is a native of warm climates, and has been rendered domeſtic in Italy, reſembles the American biſon leſs than the ox, and is not found in the New Continent.

* Hernandes, Hiſt. du Mexique, p. 512.

The

The wild goat inhabits the tops of the higheſt mountains of Europe and Aſia; but was never ſeen on the Cordeliers.

The muſk animal *, which is nearly of the ſize of a fallow deer, inhabits only particular provinces of China, and of the eaſtern parts of Tartary. The royal antelope, known by the name of the *ſmall ſtag of Guiney* †, appears to be confined to certain provinces of Africa, the Eaſt Indies, &c.

The rabbit, which came originally from Spain, and is now diffuſed over all the temperate climates of Europe, exiſted not in America; for the animals called by that name belong to a different ſpecies; and all the genuine rabbits in America were tranſported thither from Europe ‡.

The ferrets, which were brought from Africa into Europe, where they cannot ſubſiſt without the care of man, were not found in America. Even our rats and mice were unknown in that continent. But they were tranſported in our ſhips ||, and are now prodigiouſly numerous in all the cultivated countries of the New World.

The following is a pretty exact liſt of the animals peculiar to the Old Continent, and which had no exiſtence in America previous to its intercourſe with Europe: The elephant, the rhinoceros, the hippopotamus, the camelopard, the camel,

* *Hiam*, animal muſci; *Boym. Flor. Sinen.*—Animal moſchiferum; *Ray, Synoſp. Quad.* p. 127.

† Chevrotain; *Briſſon. Regn. Animal.* p. 95.

‡ L'Hiſt. des Incas, tom. ii. p. 322. || Id. ibid.

camel, the dromedary, the lion, the tiger, the panther, the horſe, the aſs, the zebra, the ox, the buffalo, the ſheep, the goat, the hog, the dog, the hyæna, the jackal, the genet, the civet, the cat, the antelope, the chamois goat, the wild goat, the ſmall Guiney ſtag, the rabbit, the ferret, the rat, the mouſe, the fat ſquirrel, the garden ſquirrel, the marmot, the ichneumon, the badger, the ſable, the ſtoat or ermine, the jerboa, the maki, and ſeveral ſpecies of monkeys, &c. All theſe animals are peculiar to the Old Continent, as ſhall be ſhown, when we give the hiſtory of each.

OF ANIMALS PECULIAR TO THE NEW WORLD.

THE animals of the New World were equally unknown to the Europeans, as ours were to the natives of America. In the New Continent, the only half-civilized people were the Peruvians and Mexicans. The latter had no domeſtic animals; but the former had reduced to ſlavery the lama, the pacos, and the alco, a ſmall creature reſembling a little dog. The pacos and the lama, to which Fernandes gives the name of *peruich-catl* *, or *Peruvian cattle*, like the chamois goat,

* *Peruich-catl*; *Fernandes, Hiſt. Nov. Hiſp.* p. 11. Camelus Peruanus *glama* dictus; *Ray, Synopſ. Quad.* p. 145. Camelus, ſeu camelo-congener Peruvianum, lanigerum, *pacos* dictum; *Id. ibid.* p. 147.

 frequent

frequent the higheſt mountains only, as thoſe of Peru, Chili, and New Spain. Though they had become domeſtic in Peru, and, of courſe, had been ſpread over the adjacent countries; yet, inſtead of multiplying in the place of their nativity, their number has diminiſhed ſince the European cattle, which have ſucceeded wonderfully in all the ſouthern regions of America, were tranſported thither.

It is ſingular, that, in a world almoſt totally occupied by ſavages, whoſe manners approached to thoſe of the brute creation, there ſhould have been no ſociety or correſpondence between theſe ſavage men and the animals which ſurrounded them; for no domeſtic animals appear, without ſome degree of civilization. Does it not follow, that man, in the ſavage ſtate, is only a ſpecies of animal, incapable of governing others, and, poſſeſſing nothing but his individual faculties, employs them for procuring ſubſiſtence, and providing for his ſafety, by attacking the weak, and avoiding the ſtrong animals, without any deſire of reducing them to ſubordination? In every nation, though half-civilized only, we meet with domeſtic animals. In France, the horſe, the aſs, the ox, the ſheep, the goat, the hog, the dog, and the cat; in Italy, the buffalo; in Lapland, the rain-deer; in Peru, the lama, the pacos, and the alco; in the eaſtern countries, the dromedary, the camel, other ſpecies of the ox, the ſheep, and the goat; in the ſouthern regions, the

 elephant;

elephant; all these have been reduced to servitude, or rather admitted into society; while the savage, who hardly wishes for the society of his female, either fears or disdains that of other animals. It is true, none of the species we have rendered domestic existed in America. But, if the savages with whom it was peopled had anciently united, and diffused the mutual knowledge and resources of society, they would have subjugated almost all the animals of that country, most of them being of gentle, tractable, and timid dispositions, very few ferocious, and none formidable. Hence these animals have avoided the slavery of a domestic state neither by the fierceness of their nature, nor by the indocility of their dispositions. Their liberty has resulted solely from the weakness of man, whose powers are extremely circumscribed without the aid of society, upon which even the multiplication of his species depends. The immense territories of the New World contained not, upon its first discovery, a greater number of inhabitants than what are to be found in one half of Europe. This scarcity of the human species allowed the other animals to multiply prodigiously. They had fewer enemies and more space: Every circumstance was favourable to their increase; and each species, accordingly, consisted of a vast number of individuals. But the number of the species, when compared with those of the Old Continent, was not above one fourth, or one third.

If we reckon that 200 ſpecies of quadrupeds exiſt in the whole known quarters of the globe *, we ſhall find above 130 of them in the Old Continent, and leſs than 70 in the New; and, if we ſubtract the ſpecies common to both Continents, or thoſe which, by their conſtitution, were able to endure the rigours of the North, and paſſed by land from the one Continent to the other, the New World cannot claim above 40 native ſpecies. In America, therefore, animated Nature is weaker, leſs active, and more circumſcribed in the variety of her productions; for we perceive, from the enumeration of the American animals, that the number of ſpecies is not only fewer, but, in general, that all the animals are much ſmaller than thoſe of the Old Continent. No American animal can be compared with the elephant, the rhinoceros, the hippopotamus, the dromedary, the camelopard, the buffalo, the lion, the tiger, &c. The tapir or *tapiierete* † of Braſil, is the largeſt quadruped of South America. This animal, the elephant of the New World, exceeds not the ſize of a calf of ſix months old, or of a very ſmall mule; for he has been compared to both of theſe animals, though he has

* Linnæus, in his laſt edition, enumerates only 179, and Briſſon 260: But more than 60 of theſe ſhould be retrenched, being only varieties, and not diſtinct ſpecies.

† *Tapiierete* Braſilienſibus; *Piſon. Hiſt. Nat. p.* 101. *Marcgravii Hiſt. Braſil. p.* 229. Maypoury, Manipouris; *Barrere, Hiſt. Fran. Equin. p.* 161. Le Tapir ou Manipouris; *Briſſon. Regn. Anim. p.* 119.—It is named *anta* by the Portugueſe.

no reſemblance to either, having neither a whole nor a cloven hoof, but feet irregularly digitated, namely, four toes on the fore-feet, and three on the hind-feet. His body is ſhaped nearly like that of the hog. His head, however, is proportionally much larger: He has no tuſks or canine teeth; and the upper lip is very long, and moveable at pleaſure. The lama is not ſo large as the tapir, and he appears to be large only by the length of his neck and legs. The pacos is ſtill a much ſmaller animal.

The Cabiai *, which, next to the tapir, is the largeſt animal of South America, exceeds not the ſize of an ordinary hog. He differs as much as any of the former from all the animals of the Old Continent; for, though he has been called the *marſh* or *river hog* †, he differs from that animal by conſpicuous and eſſential characters. He is digitated, having, like the tapir, four toes on the fore-feet and three on the hind-feet. His eyes are large, his muzzle groſs and obtuſe, his ears ſmall, his hair ſhort, and he has no tail.

The tajacou ‡ is ſmaller than the cabiai, and has a greater reſemblance to the hog, from which he differs greatly in the ſtructure of his internal parts, as in the form of the ſtomach and lungs,

* Capybara Braſilienſibus; *Marcgravii Hiſt. Braſil. p.* 230.

† Sus maximus paluſtris; *Barrere, Hiſt. Fr. Equin. p.* 160. Cochon d'eau; *Voyages de Deſmarchais, tom.* iii. *p.* 314.

‡ Tajacu; *Piſon. Hiſt. Nat. p.* 98. Tajacu, Caaigoara, Braſilienſibus; *Marcgr. Hiſt. Braſil. p.* 229. Coyametl; *Fernandes, Hiſt. Nov. Hiſp. p.* 8.

&c.

&c. He has alſo an open gland on the lower part of his back, which diſcharges a fetid liquor. He is, therefore, a ſpecies different from that of the hog; and neither the tajacou, the cabiai, nor the tapir, are found in any part of the Old Continent. The ſame thing may be ſaid of the *tamandua-guacu* or *ouariri* *, and of the *ouatiriou* †, which we have called *ant-eaters*. Theſe animals, the largeſt of which is below mediocrity, ſeem to be peculiar to South America. Their ſtructure is very ſingular; they have no teeth; their tongue is long and cylindrical, like that of the birds called woodpeckers; the opening of the mouth is ſo ſmall, that they can neither bite nor hardly lay hold of any thing; but extend their long tongue, and, putting it in the way of the ants, retract it when loaded with theſe inſects, which is the only method they have of procuring nouriſhment.

The ſloth ‡, which the natives of Braſil call *ai* or *hai*, on account of the plaintive cry *ai*, which it perpetually utters, ſeems likewiſe to be peculiar to the New Continent. He is ſtill ſmaller than any of the former, being only about two feet long. He is remarkable for walking ſlower than the turtle, for having three toes both

* Tamandua-guacu, ſive major; *Piſon. Hiſt. Nat. p.* 320. Le Fourmiller-tamanoir; *Briſſon. Regn. Animal. p.* 24.

† Tamandua minor flaveſcens, ouatiriouaou; *Barrere, Hiſt. Fr. Equin. p.* 163.

‡ Ai ou Pareſſeux; *Deſmarchais, tom.* iii. *p.* 300. Ouaikaré; *Barrere, Hiſt. Fr. Equin. p.* 154.

on the fore and hind-feet, the fore-legs much longer than the hind ones, a very ſhort tail, and no external ears. Beſides, the ſloth and the armadillo are the only quadrupeds which have no cutting and canine teeth, but cylindrical grinders only, which are rounded at the extremities, nearly like thoſe of ſome of the cetaceous animals.

The cariacou of Guiana is an animal of the nature and ſize of our largeſt roebucks. The male has horns which fall off annually, and the female has none. At Cayenne, he is called the *wood-hind*. There is another ſpecies, called *the little cariacou*, or *marſh-hind*, which is conſiderably ſmaller than the former, and the male has no horns. From the reſemblance of the name, I ſuſpected that the cariacou of Cayenne might be the *cuguacu* *, or *cougcuacou-apara* of Braſil; and, having compared the deſcriptions given by Piſo and Marcgrave of the cougouacou, with the characters of the cariacou, which I had alive, it appeared to be the ſame animal, but, at the ſame time, ſo different from our roebuck, that it ought to be regarded as a diſtinct ſpecies.

The tapir, the cabiai, the tajacou, the ant-eater, the ſloth, the cariacou, the lama, the pacos, the biſon, the puma, the jaguar, the couguar, the juguarète, the mountain-cat, &c. are the largeſt animals of the New Continent. The

* Cuguacca-ete, Cuguaca-apara; *Piſon. Hiſt. Nat. p.* 97. *Marcgrav. Hiſt. Braſil. p.* 235. Biche des Paletuviers, Biche des bois; *Barr. Hiſt. Fr. Equin. p.* 151.

middle

middle ſized and ſmaller kinds are the gouandous *, or cuandus, the agoutis, the coatis, the pacos †, the opoſſum ‡, the Indian hogs, the cavies ||, and the armadillos §, which, I believe, are all peculiar to America, though our lateſt nomenclators mention a ſpecies of armadillo in the Eaſt-Indies, and another in Africa. For the exiſtence of theſe, we have only the teſtimony of the deſcriber of the cabinet of Seba, which is not an authority that merits credit; for errors ariſing from the names of countries are very common in collections of natural objects. An animal is purchaſed under the name of the *Ternate*, or *American bat*, another under that of the *Eaſt-India armadillo*. They are immediately announced under theſe appellations in the deſcription of this collection, and are adopted into the liſts of our nomenclators. But, when examined more cloſely, theſe Ternate, or American bats, are found to be

* Cuandu Braſilienſibus; *Piſon. Hiſt. Nat. p.* 99. *Marcgrav. Hiſt. Braſil. p.* 233. Gouandou; *Barr. Hiſt. Fr. Equin. p.* 153. Chat epineux; *Deſmarchais, tom.* iii. *p.* 303. Le porc-epic d'Amerique; *Briſſon. Regn. Anim. p.* 129.

† Paca; *Piſon. Hiſt. Nat. p.* 101. Paca Braſilienſibus; *Marcgr. Hiſt. Braſil. p.* 224. Ourana, Pak; *Barrére, Hiſt. Fr. Equin. p.* 152.

‡ Carigueya Braſilienſibus; *Marcgrav. Hiſt. Braſil. p.* 222. Opoſſum; *Jean Laet, p.* 82. Le philandre; *Briſſon. Regn. Anim. p.* 286.

|| Apera Braſilienſibus; *Marcgrav. Hiſt. Braſil. p.* 223. Le lapin du Braſil; *Briſſon. Regn. Anim. p.* 140.

§ Tatou, Armadillo, Ayotochtli; *Hernandes, Hiſt. Mex. p.* 314.

 French

French bats *, and the Indian or African armadillos may likewife belong to America.

We have not hitherto mentioned the ape tribes, becaufe their hiftory demands a particular difcuffion. The word *ape* is a generic name applied to a great number of fpecies; it is not, therefore, furprifing, that many of them are faid to be found in the fouthern regions of both Continents. But, we muft now inquire whether the apes of Afia and Africa are the fame with the American animals to which that name has been applied, and whether, out of more than thirty fpecies, which we have examined alive, there be a fingle one of them common to both Continents.

The fatyr †, or man of the wood, whofe figure differs lefs from that of a man than of an ape, is peculiar to Africa and the South of Afia, and exifts not in America.

The gibbon ‡, whofe fore-legs, or hands, are as long as the whole body, including the hind-legs, is found in the Eaft-Indies, but not in America. Thefe two apes have no tails.

* See vol. iv. of this hiftory, art. BAT. *Seba, vol.* i. p. 47. where the figure of the African armadillo is reprefented, and p. 62. where that of the Indian armadillo is given.

† Satyrus Indicus, Ourang-outang Indis, et Homo fylveftris dictus; *Charleton, Exer.* p. 16. L'homme de bois; *Briffon. Regn. Anim.* p. 189.

‡ This ape, which we have feen alive, and which was brought from Pondicherry to M. Dupleix, is not mentioned by any nomenclator.

The

The ape *, properly ſo called, whoſe hair is of a greeniſh colour, mixed with a little yellow, and has no tail, is a native of Africa, and ſome other parts of the Old Continent, but not of the New. The ſame thing may be ſaid of the *cynocephali*, or dog-headed apes, of which there are two or three ſpecies. Their muzzle is not ſo ſhort as that of the former; but they have no tail, or it is ſo ſhort as ſcarcely to be viſible. All the apes which have no tail, particularly thoſe with ſhort muzzles, and whoſe face, of courſe, greatly reſembles that of man, are the genuine apes; and the five or ſix ſpecies we have mentioned are all natives of the warm climates of the Old Continent, and are found in no part of the New. Hence we are authoriſed to affirm, that there are no true apes in America.

The baboon †, an animal larger than a dog, and whoſe body is contracted like that of the hyæna, is very different from the apes formerly mentioned. His tail is very ſhort, and always erect; his muzzle is long, and broad at the extremity; his buttocks are naked, and of a blood colour; his legs are very ſhort, and his nails ſtrong and ſharp. This animal, which has great ſtrength, and is very miſchievous, is found only

* Simia Simpliciter dicta; *Ray, Synopſ. Quad. p.* 149.

† Papio; *Ray, Synopſ. Quad. p.* 158. Babio; *Charleton, Exer. p.* 16. Cebus-papio, Baboon, Hyæna Geſneri; *Klein. Quad. p.* 89. Babuin; *Mem. de Kolbe, tom.* iii. *p.* 55. *Briſſon. Regn. Anim. p.* 192.

in

in the ſouthern deſerts of the Old Continent, and not in America.

Hence all the apes which have no tails, and all thoſe whoſe tails are remarkably ſhort, belong ſolely to the Old Continent; and, of thoſe with long tails, almoſt all the large kinds are found in Africa. There are a few of a middle ſize in America; but the animals, called *little monkeys with long tails*, are very numerous in the New World. Theſe little monkeys are the *ſapajous* *, the *ſagouins* †, the tamarins, &c. When we give the particular hiſtory of theſe animals, it ſhall be ſhown that all the American monkeys are different from thoſe of Africa and Aſia.

The makis ‡, of which we know three or four ſpecies, or varieties, make a near approach to the monkeys with long tails, having, like them, hands, but longer and ſharper muzzles, and are alſo peculiar to the Old Continent. Thus all the animals of Africa and the ſouth of Aſia, which have received the names of *apes* or *monkeys*, are not to be found in America, any more than the elephant, rhinoceros, or tiger.

The more minutely we inquire into this ſubject, we will be the more convinced that the animals of the ſouthern regions of the one Continent exiſted not in the other, and that the few

* Monkeys with prehenſile tails.

† Monkeys with ſtraight, but not prehenſile tails.

‡ Maucauco's. Simia ſciurus lanuginoſus, fuſcus, &c. *Gazophil. Petiver. tab.* 17. *fig.* 5. Proſimia fuſca, le maki; *Briſſon. Regn. Anim. Quad. p.* 220.

which

which are now found there, were tranſported by man, as the Guiney ſheep, which has been carried to Braſil; the Guiney-pig, which was brought from Braſil into Guiney, and, perhaps, ſome other ſmall animals, the tranſportation of which was facilitated by the commerce and ſmall diſtance of theſe two parts of the globe. Between the coaſt of Guiney and that of Braſil, there are about 500 leagues of ſea; and there are more than 2000 between the coaſt of Peru and the Eaſt Indies. All thoſe animals which, from their nature, cannot endure cold climates, and even thoſe which, though they could ſubſiſt, cannot produce in ſuch climates, are confined, on two or three ſides, by ſeas which they are unable to traverſe, and, on the other, by countries ſo cold, that they cannot live in them. Hence we ought not to wonder at this general fact, which at firſt appeared ſingular, and was never before ſo much as ſuſpected, namely, that none of the animals which are natives of the Torrid Zone of the one Continent, are to be found in the other.

OF ANIMALS COMMON TO BOTH CONTINENTS.

FROM the preceding enumeration, it appears, that not only the quadrupeds in the warmeſt climates of Africa and Aſia, but moſt of thoſe in the temperate regions of Europe, are wanting in America. But ſeveral of our animals which can endure

dure cold, and multiply in the northern climates, are found in North America: And, though they differ conſiderably, we are obliged to acknowledge them to be the ſame, and to believe that they formerly paſſed from the one Continent to the other by lands, which are ſtill unknown, or rather have long ſince been ſwallowed up by the ocean. This proof, drawn from Natural Hiſtory, is a ſtronger demonſtration of the almoſt continued contiguity of theſe two Continents, than all the conjectures of ſpeculative geographers.

The bears of the Illionois, of Louiſiana, &c. appear to be the ſame with ours; only the former are ſmaller and blacker.

The ſtag of Canada, though leſs than ours, differs from him only by the greater height of his horns, more numerous antlers, and a longer tail.

The roebuck, which is found in the ſouth of Canada and in Louiſiana, is likewiſe ſmaller, and has a longer tail than the European kind. The original is the ſame animal with the elk, though it is not equally large.

The rain-deer of Lapland, the fallow-deer of Greenland, and the caribou of Canada, appear to be the ſame animal. The fallow-deer or ſtag of Greenland, deſcribed and painted by Edwards *, has too great a reſemblance to the rain-deer to be regarded as a different ſpecies. As to the caribou, though there is no exact deſcription of it; yet, from the marks we have been able to col-

* Nat. Hiſt. of Birds, p. 51.

lect,

lect, it ſeems to be the ſame animal with the rain-deer. M. Briſſon * has made the caribou a different ſpecies, and refers it to the *cervus Burgundicus* of Johnſton. But this *cervus Burgundicus* is an unknown animal, and certainly never exiſted either in Burgundy or in Europe: It is a ſimple name that has been given to ſome uncommon horns of the ſtag or fallow-deer; or rather M. Briſſon may have ſeen the head of the caribou, whoſe horns conſiſted of one ſtraight ſtem on each ſide, about ten inches long, with an antler or branch near the baſe, turned forwards; or the head of a female rain-deer; or a head of the firſt or ſecond year; for the female rain-deer bears horns as well as the male, though much ſmaller, and, in both, the direction of the firſt antlers is forward; and, laſtly, in this animal, as well as in all others of the deer kind, the ramifications of the horns are exactly proportioned to the number of years they have lived.

The hares, the ſquirrels, the hedgehogs, the otters, the marmots, the rats, the ſhrew-mice, and the moles, are alſo ſpecies common to the two Continents, though, in all theſe kinds, there is not an American ſpecies perfectly ſimilar to thoſe of Europe; and it is extremely difficult, if not impoſſible, to pronounce with certainty whether they are really different ſpecies, or only varieties of the ſame, changed by the influence of the climate.

* Briſſon, Regn. Animal. p. 91.

The

The beavers of Europe appear to be the ſame with thoſe of Canada. Though theſe animals prefer cold countries, they can ſubſiſt, and even multiply, in temperate climates. There are ſtill ſome of them in France upon the iſlands of the Rhone. Their number was formerly much greater; and they ſeem to avoid populous countries more than very warm climates. They never eſtabliſh their ſocieties but in deſerts remote from the habitations of men: And, even in Canada, which may be conſidered as a vaſt deſert, they have retired far from any of our ſettlements.

The wolf and fox are alſo common to both Continents. They are found, but with ſome varieties, in all parts of North America, where there are black foxes and wolves; but all of them are ſmaller than thoſe of Europe, which is the caſe with every animal, whether native or tranſported.

Though the weaſel and ermine frequent the cold countries of Europe, they are at leaſt very rare in America; but the pine-weaſel, the martin, and the polecat, are more numerous.

The pine-weaſel of North America appears to be the ſame with ours. The viſon, or pekan weaſel of Canada, has a great reſemblance to the martin; and the ſtriped polecat of North America is perhaps only a variety of the European kind.

The American lynx ſeems to be the ſame with the European. He prefers cold countries; but

but he likewiſe lives and multiplies in temperate climates, and generally frequents the foreſts and high mountains.

The ſeal, or ſea-calf, ſeems to be confined to northern countries, and is found equally on the coaſts of Europe and of North America.

Theſe are nearly all the animals which are common to the Old and New Worlds; and from this number, which is not conſiderable, we ought, perhaps, to retrench more than a third part, whoſe ſpecies, though apparently the ſame, may be different in reality. But, admitting the identity of all theſe ſpecies with thoſe of Europe, the number common to the two Continents is very ſmall, when compared with that of the ſpecies peculiar to each. It is farther apparent, that, of all theſe animals, it is thoſe only which frequent the northern countries that are common to both Continents; and that none of thoſe which cannot multiply but in warm or temperate climates are found in both worlds.

It is, therefore, no longer a doubtful point, that the two Continents either are, or have formerly been, contiguous towards the north, and that the animals common to both have paſſed from the one to the other by lands with which we have now no acquaintance. We are led to believe, eſpecially ſince the diſcoveries made by the Ruſſians to the north of Kamtſchatka, that the lands of Aſia are contiguous to thoſe of America; for the north of Europe ſeems to have been

been always ſeparated from the New World by ſeas too conſiderable to permit the paſſage of any quadruped. Theſe animals, however, of North America, are not preciſely the ſame with thoſe of the north of Aſia; but have a ſtronger reſemblance to the quadrupeds of the north of Europe. It is the ſame with the animals which belong to the temperate climates. The argali, or Siberian goat, the ſable, the Siberian mole, and the Chineſe muſk, appear not in Hudſon's Bay, nor in any other north-weſt part of the New Continent; but, on the contrary, we find, in the north-eaſt parts of it, not only the animals common to the north of Europe and Aſia, but likewiſe thoſe which appear to be peculiar to Europe, as the elk, the rain-deer, &c. It muſt, however, be acknowledged, that the north-eaſt parts of Aſia are ſo little known, that we can have no certainty whether the animals of the north of Europe exiſt there or not.

We formerly remarked, as a ſingular phænomenon, that the animals in the ſouthern provinces of the New Continent, are ſmall in proportion to thoſe in the warm regions of the Old. There is no compariſon between the ſize of the elephant, the rhinoceros, the hippopotamus, the camelopard, the camel, the lion, the tiger, &c. and the tapir, the cabiai, the ant-eater, the lama, the puma, the jaguar, &c. which are the largeſt quadrupeds of the New World: The former are four, ſix, eight, and ten times larger than the

latter.

latter. Another obſervation brings additional ſtrength to this general fact: All the animals which have been tranſported from Europe to America, as the horſe, the aſs, the ox, the ſheep, the goat, the hog, the dog, &c. have become ſmaller; and thoſe which were not tranſported, but went thither ſpontaneouſly, thoſe, in a word, which are common to both Continents, as the wolf, the fox, the ſtag, the roebuck, the elk, &c. are alſo conſiderably leſs than thoſe of Europe.

In this New World, therefore, there is ſome combination of elements and other phyſical cauſes, ſomething that oppoſes the amplification of animated Nature: There are obſtacles to the developement, and perhaps to the formation of large germs. Even thoſe which, from the kindly influences of another climate, have acquired their complete form and expanſion, ſhrink and diminiſh under a niggardly ſky and an unprolific land, thinly peopled with wandering ſavages, who, inſtead of uſing this territory as a maſter, had no property or empire; and, having ſubjected neither the animals nor the elements, nor conquered the ſeas, nor directed the motions of rivers, nor cultivated the earth, held only the firſt rank among animated beings, and exiſted as creatures of no conſideration in Nature, a kind of weak automatons, incapable of improving or ſeconding her intentions. She treated them rather like a ſtepmother than a parent, by denying

them the invigorating ſentiment of love, and the ſtrong deſire of multiplying their ſpecies. For, though the American ſavage be nearly of the ſame ſtature with men in poliſhed ſocieties, yet this is not a ſufficient exception to the general contraction of animated Nature throughout the whole Continent. In the ſavage, the organs of generation are ſmall and feeble. He has no hair, no beard, no ardour for the female. Though nimbler than the European, becauſe more accuſtomed to running, his ſtrength is not ſo great. His ſenſations are leſs acute; and yet he is more timid and cowardly. He has no vivacity, no activity of mind. The activity of the body is not ſo much an exerciſe or ſpontaneous motion, as a neceſſary action produced by want. Deſtroy his appetite for victuals and drink, and you will at once annihilate the active principle of all his movements; he remains, in ſtupid repoſe, on his limbs or couch for whole days. It is eaſy to diſcover the cauſe of the ſcattered life of ſavages, and of their eſtrangement from ſociety. They have been refuſed the moſt precious ſpark of Nature's fire. They have no ardour for women, and, of courſe, no love to mankind. Unacquainted with the moſt lively and moſt tender of all attachments, their other ſenſations of this nature are cold and languid. Their love to parents and children is extremely weak. The bonds of the moſt intimate of all ſocieties, that of the ſame family, are feeble; and one family has

has no attachment to another. Hence no union, no republic, no ſocial ſtate, can take place among them. The phyſical cauſe of love gives riſe to the morality of their manners. Their heart is frozen, their ſociety cold, and their empire cruel. They regard their females as ſervants deſtined to labour, or as beaſts of burden, whom they load unmercifully with the produce of their hunting, and oblige, without pity or gratitude, to perform labours which often exceed their ſtrength. They have few children, and pay little attention to them. Every thing muſt be referred to the firſt cauſe: They are indifferent, becauſe they are weak; and this indifference to the ſex is the original ſtain which diſgraces Nature, prevents her from expanding, and, by deſtroying the germs of life, cuts the root of ſociety.

Hence man makes no exception to what has been advanced. Nature, by denying him the faculty of love, has abuſed and contracted him more than any other animal. But, before examining the cauſes of this general effect, it muſt be allowed, that, if Nature has diminiſhed all the quadrupeds in the New World, ſhe ſeems to have cheriſhed the reptile and enlarged the inſect tribes; for, though at Senegal there are longer ſerpents and larger lizards than in South America, yet the difference between theſe animals is not near ſo great as that which ſubſiſts between the quadrupeds. The largeſt ſerpent of Senegal is not double the ſize of the Cayenne

 ſerpent.

ſerpent. But the elephant is perhaps ten times the bulk of the tapir, which is the largeſt quadruped of South America. With regard, however, to inſects, they are no where ſo large as in South America. The largeſt ſpiders, beetles, caterpillars, and butterflies, are found in Cayenne and other neighbouring provinces: Here almoſt all inſects exceed thoſe of the Old World, not in ſize only, but in richneſs of colouring, delicacy of ſhades, variety of forms, number of ſpecies, and the prodigious multiplication of individuals. The toads, the frogs, and other animals of this kind, are likewiſe very large in America. We ſhall take no notice of birds and fiſhes; becauſe, as Nature has enabled them to paſs from the one Continent to the other, it is hardly poſſible to diſtinguiſh thoſe which are proper to each. But reptiles and inſects, like the quadrupeds, are confined to their reſpective Continents.

Let us now examine why the reptiles and inſects are ſo large, the quadrupeds ſo ſmall, and the men ſo cold, in the New World. Theſe effects muſt be referred to the quality of the earth and atmoſphere, to the degree of heat and moiſture, to the ſituation and height of mountains, to the quantity of running and ſtagnant waters, to the extent of foreſts, and, above all, to the inert condition of Nature in that country. In this part of the globe, the heat in general is much leſs, and the humidity much greater. If we compare the heat and cold of every degree of latitude,

latitude, we ſhall find very conſiderable differences: At Quebec, for example, which is under the ſame degree of latitude with Paris, the rivers freeze every year ſome feet thick; a coat of ſnow ſtill thicker covers the land for ſeveral months; the air is ſo cold that the birds fly off and diſappear during the winter, &c. This difference of heat, under the ſame latitude in the Temperate Zone, though very conſiderable, is perhaps ſtill leſs than the difference of heat under the Torrid Zone. In Senegal, the ſun is perfectly ſcorching; while in Peru, which lies under the ſame line, an agreeable temperature prevails. The ſame remark applies to all the other latitudes. The Continent of America is ſo formed and ſituated, that every circumſtance concurs in diminiſhing the action of heat. America contains the higheſt mountains, and, of courſe, the largeſt rivers of the world. Theſe mountains form a chain which ſeems to bound the Continent towards the weſt, through its whole extent. The plains and low grounds are all ſituated on this ſide of the mountains, and run from their bottoms to the ſea which ſeparates the Continents on this ſide. Thus the eaſt wind, which blows perpetually between the Tropics, arrives not in America, till it has traverſed a vaſt ocean, by which it is greatly cooled. Hence this wind is much cooler in Braſil, Cayenne, &c. than at Senegal, Guiney, &c. where it arrives impregnated with the accumulated heat acquired from all the lands and burning ſands in its paſſage

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through Aſia and Africa. Let us recollect what was remarked concerning the different colours of men, and particularly of the Negroes. It ſeemed to be demonſtrated, that the greater or leſs degree of a tawny, brown, or black colour, depends entirely on the ſituation of the climate; that the Negroes of Nigritia, and thoſe of the weſt coaſt of Africa, are blackeſt; becauſe their countries are ſituated in ſuch a manner, that the heat is always greater than in any other part of the globe, the eaſt wind before its arrival having traverſed vaſt tracts of land; that, on the contrary, the American Indians under the line, are only tawny, and the Braſilians brown, though under the ſame latitude with the Negroes; becauſe the heat of their climate is neither ſo great nor ſo conſtant, the eaſt wind arriving not till after being cooled by the waters, and loaded with moiſt vapours. The clouds which intercept the light and heat of the ſun, and the rains which refreſh the air and the ſurface of the earth, are periodic, and continue ſeveral months in Cayenne, and other regions of South America. This firſt cauſe renders all the eaſt coaſts of America much more temperate than Africa or Aſia: And, after the eaſt wind has arrived in a cool ſtate, in traverſing the plains of America, it begins to aſſume a greater degree of heat, when it is ſuddenly ſtopped and cooled by that enormous chain of mountains of which the weſtern part of the New Continent is compoſed; ſo that

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it is ſtill colder under the line at Peru, than at Braſil, Cayenne, &c. on account of the prodigious elevation of the land. Hence the natives of Peru, Chili, &c. are leſs brown, red, or tawny, than thoſe of Braſil. If theſe mountains were reduced to a level with the adjacent plains, the heat on the weſtern coaſts would become exceſſive, and we would ſoon find Negroes at Peru and Chili, as well as upon the weſt coaſts of Africa.

Thus, from the ſituation of the land alone in the New Continent, the heat muſt be greatly inferior to that of the Old; and I ſhall now ſhow, that there is likewiſe a greater degree of moiſture in America. The mountains, which are the higheſt upon the globe, and are oppoſed to the direction of the eaſt wind, ſtop and condenſe all the aërial vapours, and, of courſe, give riſe to an infinite number of ſprings, which, by uniting, ſoon form the greateſt rivers in the world. Hence in the New Continent, there are more running waters, in proportion to the extent of territory, than in the Old; and this quantity of water is greatly increaſed for want of proper drains or outlets. The natives having neither ſtopped the torrents, nor directed the rivers, nor drained the marſhes, the ſtagnating waters cover immenſe tracts of land, augment the moiſture of the air, and diminiſh its heat. Beſides, as the earth is every where covered with trees, ſhrubs, and groſs herbage, it never dries. The tranſpiration of ſo many vegetables, preſſed cloſe together,

gether, produces immenſe quantities of moiſt and noxious exhalations. In theſe melancholy regions, Nature remains concealed under her old garments, and never exhibits herſelf in freſh attire; being neither cheriſhed nor cultivated by man, ſhe never opens her fruitful and beneficent womb. Here the Earth never ſaw her ſurface adorned with thoſe rich crops, which demonſtrate her fecundity, and conſtitute the opulence of poliſhed nations. In this abandoned condition, every thing languiſhes, corrupts, and proves abortive. The air and the earth, overloaded with humid and noxious vapours, are unable either to purify themſelves, or to profit by the influences of the Sun, who darts in vain his moſt enlivening rays upon this frigid maſs, which is not in a condition to make ſuitable returns to his ardour. Its powers are limited to the production of moiſt plants, reptiles, and inſects, and can afford nouriſhment only to cold men and feeble animals.

The ſcarcity of men, therefore, in America, and moſt of them living like the brutes, is the chief cauſe why the earth remains in a frigid ſtate, and is incapable of producing the active principles of Nature. To expand the germs of the largeſt quadrupeds, and to enable them to grow and multiply, requires all the activity which the ſun can give to a fertile earth. It is for the oppoſite reaſon, that inſects, reptiles, and all the animals which wallow in the mire, whoſe blood

is

is watery, and which multiply in corruption, are larger and more numerous in the low, moiſt, and marſhy lands of the New Continent.

When we reflect on theſe remarkable differences between the Old and New World, we are inclined to believe that the latter is actually more recent, and has continued longer than the reſt of the globe under the waters of the ocean; for, if we except the enormous weſtern mountains, which appear to be monuments of the higheſt antiquity which this globe affords, all the low parts of this Continent ſeem to be new lands, elevated and formed by the ſediments of waters. In many places, immediately under the vegetable ſtratum, we find ſea ſhells and madrepores already forming large maſſes of lime-ſtone, but which are commonly ſofter than our free-ſtone. If this Continent be really as ancient as the other, why was it ſo thinly peopled? Why were almoſt its whole inhabitants wandering ſavages? Why did the Peruvians and Mexicans, who had united into ſociety, reckon only two or three hundred years ſince the exiſtence of the firſt man who taught them to aſſociate? Why are they ſtill ignorant of the art of tranſmitting facts to poſterity by permanent ſigns, ſince they had already diſcovered a method of conveying their ideas at a diſtance by tying knots upon cords? Why did they not reduce the lama, the pacos, and other animals, into a domeſtic ſtate? Their arts, like their ſociety, were in embryo; their

talents

talents were imperfect, their ideas locked up, their organs rude, and their language barbarous. Below is a liſt of animals, whoſe names are ſo difficult to pronounce, that it is ſurpriſing how the Europeans could ſubmit to the trouble of writing them *.

* *Pelon ichiatl oquitli.* The lama.

Tapiierete in Braſil, *maypoury* or *manipouris* in Guiana. The tapir.

Tamandua-guacu in Braſil, *ouariri* in Guiana. The great ant-eater.

Ouatirriouaou in Guiana. The little ant-eater.

Ouaikaré in Guiana, *ai* or *hai* in Braſil. The ſloth.

Aiotochtli in Mexico, *tatu* or *tatupeba* in Braſil, *chirquinchum*, in New Spain. The armadillo.

Tatu-ete in Braſil, *tatou-kabaſſou* in Guiana. The eight-banded armadillo.

Macatlchichiltic temamacama. The antelope of New Spain.

Jiya or *carigueibeju.* The Braſilian otter.

Quauhtla coymatl or *quapizotl* in Mexico, or *caaigoara* in Braſil. The Mexican hog.

Tlacoozclotl, or *tlalocelotl.* The mountain cat.

Cabionara, or *capybara.* The cabiai, or thick-noſed tapir.

Tlatlauhqui ocelotl in Mexico, *janowara* or *jaguara* in Braſil. The jaguar, or Braſilian cat.

Cuguacu arana, or *cuguacu ara, cougouacou ara.* The cuguar, or brown cat.

Tlaquatzin in Mexico, *aouaré* in Guiana, *carigueya* in Braſil. The opoſſum.

Hoitzlaquatzin. The porcupine of New Spain.

Cuandu or *gouandou.* The Braſilian porcupine.

Tape-maxtlaton in Mexico, *maraguæ* or *maracaia* in Braſil. The Cayenne cat.

Quauhtechallotl thliltic or *tlilocotequillin.* The black ſquirrel.

Quimichpatlan or *aſſapanick.* An animal reſembling the flying ſquirrel, and is perhaps the ſame.

Yzquiepatl. The mouffette, or ſtifling weaſel.

Xoloitzcuintli or *cuetlachtli.* The Mexican wolf.

 Hence

Hence every circumſtance indicates that the Americans are new men, or rather men who had been ſo long ſeparated from their original country, that they had loſt every idea of the part of the world from which they had iſſued; that the greateſt part of the Continent of America was new land, ſtill untouched by the hand of man, and in which Nature had not time ſufficient to accompliſh her plans, or to unfold the whole extent of her productions; that the men are cold, and the animals ſmall, becauſe the ardour of the former, and the magnitude of the latter, depend upon the ſalubrity and heat of the air; and that ſome centuries hence, when the lands are cultivated, the foreſts cut down, the courſes of the rivers properly directed, and the marſhes drained, this ſame country will become the moſt fertile, the moſt wholeſome, and the richeſt in the whole world, as it is already in all the parts which have experienced the induſtry and ſkill of man. We mean not, however, to conclude, that large animals would then be produced. The tapir and cabiai will never acquire the magnitude of the elephant or hippopotamus. But the animals tranſported thither will no longer diminiſh, as they have formerly done. Man will gradually fill up the vacuities in theſe immenſe territories, which were perfect deſerts when firſt diſcovered.

The firſt hiſtorians of the Spaniſh conqueſt, to augment the glory of their arms, have exaggerated

gerated prodigiouſly the number of the enemies they had to encounter. Can theſe hiſtorians perſuade any man of ſenſe, that there were millions of inhabitants in Cuba and St. Domingo, when, at the ſame time, there was neither a monarchy, a republic, nor hardly any ſociety among them; and that in theſe two large adjacent iſlands, and at no great diſtance from the Continent, there were only five ſpecies of quadrupeds, the largeſt of which exceeded not the ſize of a ſquirrel or a rabbit? Nothing can be a ſtronger proof of the empty and deſert ſtate of nature in theſe new lands. ‘ We found,’ ſays Laet, ‘ in the ‘ iſland of St. Domingo, but few ſpecies of qua‘ drupeds, as the *butias*, which differs not much ‘ from our rabbit, but is only a little ſmaller, with ‘ ſhort erect ears, and a tail like that of a mole; ‘ —the *chemi*, which is nearly of the ſame form ‘ with the *butias*, but ſomewhat larger;—the ‘ *molui*, which is ſmaller than the *butias*;—the ‘ *cori*, of equal ſize with the rabbit; its mouth ‘ reſembles that of the mole; it has no tail, and ‘ its legs are ſhort; ſome of them are black, but ‘ oftener a mixture of black and white; it is a do‘ meſtic animal, and very tame;—beſides a ſmall ‘ kind of *dogs*, which were abſolutely mute; ‘ their number is now much diminiſhed, becauſe ‘ the European dogs have deſtroyed them *.’

* L'Hiſt. du Nouv. Monde, par Jean Laet, liv. i. chap. 4. p. 5. L'Hiſt. de l'Iſle Saint Domingue, par le P. Charlevoix, tom. i. p. 35.

‘ In

'In the iſlands of St. Domingo, Cuba, and the 'Antilles,' ſays Acoſta *, 'there were hardly 'any of the animals belonging to the Continent 'of America, and not one that reſembled thoſe 'of Europe.'—'All the ſheep, goats, horſes, 'oxen, and aſſes,' remarks Father du Tertre, 'in the Antilles, in Guadaloupe, and in all 'the French iſlands, have been brought there 'by the people of that nation; for none were 'carried there by the Spaniards, becauſe the 'Antilles were then ſo thickly covered with 'wood, that the cattle could find no herbage 'for their ſubſiſtence †.' M. Fabry, who traverſed, during fifteen months, the weſtern territories of America, beyond the Miſſiſippi, aſſured me, that he often travelled three or four hundred leagues without ſeeing a ſingle man. All our military gentlemen, who went from Quebec to the river Ohio, and from the Ohio to Louiſiana, agree, that a perſon may frequently travel one or two hundred leagues, in the depth of the foreſts, and not meet with a ſingle family of ſavages. All theſe teſtimonies ſhow the deſert and melancholy ſtate of the New Continent, even where the temperature of the climate is moſt agreeable. But, what is more directly to our preſent purpoſe, they deſtroy the poſte-

* L'Hiſt. Nat. des Indes, par Joſeph Acoſta, p. 144.

† L'Hiſt. Gen. des Antilles, par le P. du Tertre tom. ii. p. 289. where the reader will find many articles borrowed from Joſeph Acoſta.

rior

rior evidence of our nomenclators, and defcribers of cabinets, who people the New World with the animals peculiar to the Old, and mark others as natives of particular countries where they never exifted. For example, it is certain, that, in St. Domingo, there were originally no quadrupeds larger than a rabbit; and, though there had, they would have been devoured by the European dogs, which foon became as wild and ferocious as wolves: However, to the *marac* or *maracai* of Brafil, they have given the name of the tiger-cat * of St. Domingo, though it is no where found but on the Continent. They have made the fcaly lizard, or long-tailed manis of Java, an American animal, called *tatoe* by the Brafilians †, which is peculiar to the Eaft Indies: They maintain, that the civet ‡, which is a native of the fouthern parts of the Old Continent, is found alfo in New Spain, without confidering that a creature fo ufeful, which is reared in feveral parts of Africa, of the Levant, and the Indies, as a domeftic animal, for the purpofes of collecting the mufk, an important article of commerce, would not have been neglected by the Spaniards, if the civets really exifted in New Spain.

But our nomenclators have likewife denied to America fome animals to which fhe has an original

* Felis fi[illegible]eftris *Tigrinus in Hifpaniola*; *Seba*, *vol.* i. p. 77.
† Seba, vol. i. p. 88.
‡ Briffon. Regn. Anim. p. 258.

title.

title. They have placed the opoſſum in the Eaſt Indies *, and the ſloth in Ceylon †, though theſe animals belong ſolely to the New World, and are ſo remarkable, the one for a ſac under its belly, in which it carries its young, the other for the extreme ſlowneſs of all its movements, that, if they exiſted in the Eaſt Indies, travellers could never have paſſed them over in ſilence. Seba relies on the authority of Francis Valantine for the Eaſt Indian poſſum. But this authority can have no weight; for Francis Valantine was ſo ignorant of the quadrupeds and fiſhes of Amboyna, and his deſcriptions are ſo bad, that Artedi declares no uſe can be made of his information.

We pretend not, however, to affirm abſolutely, that none of the quadrupeds in the warm climates are common to both Continents. Of this we can have no phyſical certainty, till the whole of them be accurately examined. But it is evident, that none of the large, and very few of the ſmall American animals, exiſt in the Old Continent. Beſides, though there ſhould be ſome exceptions, which I hardly imagine, they muſt be limited to a very ſmall number of animals, and could have no influence on the general law which I mean to eſtabliſh, and which ſeems to be the only rule for enabling us to acquire a proper knowledge of the animal kingdom. This law,

* Seba, vol. i. p. 61, 64.
† Id. ibid. p. 54.

which

which leads us to judge as much by the climate and dispositions of animals, as by their figure and structure, will seldom deceive, and will enable us to avoid or detect a multiplicity of errors. Suppose the question, for example, to be concerning an Arabian animal, as the hyæna, we may safely pronounce that it exists not in Lapland; but we will never maintain, with some naturalists, that the hyæna and glutton are the same animal *, nor with Kolbe, that the cross fox, which inhabits the most northern regions of the New Continent, is found at the Cape of Good Hope †; and we will find, that this animal is not a fox, but a jackal: Neither should the animal, called by the same author the *earth-hog*, which feeds upon ants, be confounded with the ant-eaters of America: This Cape animal is probably the manis or scaly lizard ‡, which has no other resemblance to the ant-eater, than that of using the same food. In the same manner, if it had been considered, that the rain-deer ‖ is a northern animal, this name would have never been applied to an African antelope. The phoca, or seal, which frequents the seas of the north, ought not to be found at the Cape of Good Hope §. The genet, which is a native of Spain, Asia Minor, &c. and peculiar to the Old Con-

* Regn. Anim. par Brisson, p. 234.

† Descript. du Cap, par Kolbe, tom. iii. p. 62.

‡ Id. ibid. p. 43.

‖ Id. ib. p. 128.

§ Brisson. Regn. Anim. p. 230. where he says, after Kolbe, that the seal is called a *sea-dog* by the inhabitants of the Cape of Good Hope.

tinent,

tinent, is ranked by Klein under the name of *Coati* *, which is an American animal. The *yſquiepatl* of Mexico, an animal which exhales an offenſive odour, and for that reaſon we ſhall rank it with the pole-cats, ſhould never be conſidered as a ſmall fox or badger †. The *Coati mondi* of America ſhould not be confounded, as has been done by Aldrovandus ‡, with the badger-hog, which is always mentioned as an European animal. But I mean not to exhibit all the errors of nomenclators. My aim is to prove, that their blunders would not have been ſo numerous, if they had attended to the difference of climates; if they had ſtudied the hiſtories of animals, and diſcovered, as I have done, that thoſe of the ſouthern parts of each Continent are never found in both; and, laſtly, if they had abſtained from generic names, by which numbers of ſpecies, not only different, but very remote from each other, are blended together.

Thus the genuine object of a nomenclator is not to lengthen, but to contract his liſt, by making impartial inquiries and compariſons. No taſk can be eaſier than to peruſe all the writers on animals, and to form a table of their names and phraſes, which will always be longer in proportion as the labour beſtowed in inveſtigation is leſs: But nothing is more difficult than to exa-

* Klein. de Quad. p. 63.
† Seba, vol. i. Briſſon. Regn. Anim. p. 255.
‡ Aldrovand. Quad. Digit. p. 267.

mine and compare animals with that judgment and diſcernment, which are neceſſary to reduce this table to its juſt dimenſions. I again repeat, that there are not in the whole habitable earth above two hundred ſpecies of quadrupeds, even including forty different ſpecies of monkeys. To each of theſe, therefore, we have only to allot a proper name; and a very indifferent memory is able to retain two hundred names. For what purpoſe, then, are quadrupeds arranged into claſſes, orders, and genera? Methodical diſtributions are only a kind of ſcaffolds invented to aid the memory in the recollection of plants, the number of which is ſo great, their diſtinctions ſo minute, and their ſpecies ſo liable to variation, that it is neceſſary to conſider them in bundles or genera, by putting together ſuch as have the greateſt ſimilarity to each other. As in all works of genius, what is abſolutely uſeleſs, is always ill imagined, and often becomes hurtful, inſtead of giving names to two hundred quadrupeds, we have dictionaries loaded with ſuch a variety of terms and phraſes, that it would require more labour to explain, than was ſpent in compoſing them. Why employ a phraſeological jargon, when we can ſpeak plain language, by pronouncing ſimple names? Why change all the acceptation of terms, under the pretext of making claſſes and genera? When a genus is compoſed of a dozen of animals, under the name, for example, of the *rabbit*, why is not the rabbit itſelf to be found there, but muſt be

be ſought for under the genus of *hare**? Is it not abſurd, and even ridiculous, to fabricate claſſes, where genera the moſt remote are aſſembled together; for example, to unite in the firſt, *man* † and the *bat*; in the ſecond, the *elephant* and *ſcaley lizard*; in the third, the *lion* and the *ferret*; in the fourth, the *hog* and the *mole*; in the fifth, the *rhinoceros* and the *rat*? &c. Such heterogeneous and ill conceived ideas cannot be ſupported. The works, accordingly, which contain fancies ſo crude, have been ſucceſſively deſtroyed by their own authors. One edition contradicts another, and the whole receives no applauſe but from tyros and children, who are uniformly the dupes of myſtery, to whom the fopperies of method appear to be ſcientific, and, in fine, who reſpect their maſter in proportion to the talent he poſſeſſes of repreſenting the cleareſt and moſt perſpicuous objects under the moſt abſtruſe and dark points of view.

By comparing the fourth edition of Linnæus's work with the tenth, we find, that man ‡ is no longer ranked with the bat, but with the ſcaley lizard; that the elephant, the hog, and the rhinoceros, inſtead of being ranked, the firſt with the ſcaley lizard, the ſecond with the mole, and the third with the rat, are all aſſociated with the ſhrew-mouſe ‖. Inſtead of the five orders or claſſes § of *anthropomorpha*, *feræ*, *glires*, *ju-*

* Briſſon. Regn. Anim. p. 140. 142.
† Linn. Syſt. Nat. Holmiæ, 1758, tom. i. p. 18, 19.
‡ Id. edit. 4. p. 64.
‖ Id. ibid. p. 69.
§ Id. ibid. p. 63.

menta, and *pecora*, to which he had reduced all quadrupeds, the author, in this laſt edition, has ſplit them into ſeven *, viz. *primates*, *bruta*, *feræ*, *beſtiæ*, *glires*, *pecora*, *belluæ*. From theſe general changes, we may conceive the many alterations introduced among the genera and ſpecies, which laſt alone have any real exiſtence. He ſays, that there are two ſpecies of men, the *day-man*, and the *night-man*, *homo diurnus ſapiens; homo nocturnus troglodites* †; and that theſe diſtinct ſpecies ſhould not be regarded as varieties only ‡. Is not this to add fable to abſurdity, to repreſent the ravings of old women, or the falſehoods of credulous travellers, as conſtituting a principal part in the ſyſtem of Nature? Is it not better to be ſilent with regard to matters of which we are ignorant, than to eſtabliſh eſſential characters and general diſtinctions upon the groſſeſt errors, ſuch as, for example, that, of all animals which give ſuck, woman alone has a clitoris ‖? This is ſo oppoſite to the truth, that, of above a hundred different animals which we have diſſected, not a ſingle one wanted that organ. But I have dwelt, perhaps, too long on criticiſms of

* Linn. Syſt. Nat. edit. 10. p. 16, 17.

† Id. ib. p. 20. 24.

‡ Specimen trogloditæ ab homine ſapiente diſtinctiſſimam, nec noſtri generis illam nec ſanguinis eſſe, ſtatura quamvis ſimillimam dubium non eſt, ne itaque varietatem credas quam vel ſola membrana nictitans abſolute negat; *Linn. Syſt. Nat. edit.* 10. *p.* 24.

‖ Id. ib. p. 24, 25.

this kind, eſpecially as they are not my principal object. I have ſaid enough to guard the reader againſt errors both of a general and particular kind, which are no where ſo numerous as in the works of nomenclators; becauſe, being ſolicitous to comprehend every thing within the limits of their ſyſtems, they are obliged to aſſociate all that they are ignorant of with the little that they know.

From what has been advanced, the following general concluſions may be drawn: That man is the only animated being on whom Nature has beſtowed ſufficient ſtrength, genius, and ductility, to enable him to ſubſiſt and to multiply in every climate of the earth. No other animal, it is evident, has obtained this great privilege; for, inſtead of multiplying every where, moſt of them are limited to certain climates, and even to particular countries. Man is totally a production of heaven: But the animals, in many reſpects, are creatures of the earth only. Thoſe of one Continent are not found in another; or, if there are a few exceptions, the animals are ſo changed and contracted, that they are hardly to be recogniſed. Is any farther argument neceſſary to convince us, that the model of their form is not unalterable; that their nature, leſs fixed than that of man, may be varied, and even abſolutely changed in a ſucceſſion of ages; that, for the ſame reaſon, the leaſt perfect, the leaſt active, and the worſt defended, as well as the moſt delicate

and heavy ſpecies, have already, or will ſoon diſappear; for their very exiſtence depends on the form which man gives or allows to the ſurface of the earth?

The prodigious *mammouth*, whoſe enormous bones I have often viewed with aſtoniſhment, and which were, at leaſt, ſix times larger than thoſe of the largeſt elephant, has now no exiſtence; yet the remains of him have been found in many places remote from each other, as in Ireland, Siberia, Louiſiana, &c. This ſpecies was unqueſtionably the largeſt and ſtrongeſt of all quadrupeds; and, ſince it has diſappeared, how many ſmaller, weaker, and leſs remarkable ſpecies muſt likewiſe have periſhed, without leaving any evidence of their paſt exiſtence? How many others have undergone ſuch changes, either from degeneration or improvement, occaſioned by the great viciſſitudes of the earth and waters, the neglect or cultivation of Nature, the continued influence of favourable or hoſtile climates, that they are now no longer the ſame creatures? Yet the quadrupeds, next to man, are beings whoſe nature and form are the moſt permanent. Birds and fiſhes are ſubject to greater variations: The inſect-tribes are liable to ſtill greater viciſſitudes: And, if we deſcend to vegetables, which ought not to be excluded from animated Nature, our wonder will be excited by the quickneſs and facility with which they aſſume new forms.

2 Hence,

Hence, it is not impoſſible, that, without inverting the order of Nature, all the animals of the New World were originally the ſame with thoſe of the Old, from whom they derived their exiſtence; but that, being afterwards ſeparated by immenſe ſeas, or impaſſable lands, they would, in the progreſs of time, ſuffer all the effects of a climate that had become new to them, and muſt have had its qualities changed by the very cauſes which produced the ſeparation, and, conſequently, degenerate, &c. But theſe circumſtances ſhould not prevent them from being now regarded as different ſpecies of animals. From whatever cauſe theſe changes, produced by the operation of time and the influence of climate, have originated, and though we ſhould date them from the creation itſelf, they are not the leſs real. Nature, I allow, is in a perpetual ſtate of fluctuation: But it is enough for man to ſeize her in his own age, and to look backward and forward, in order to diſcover her former condition, and what future appearances ſhe may probably aſſume.

With regard to the utility of this mode of comparing animals, it is evident, that, independent of aſcertaining names, of which ſome examples have been given, it extends our knowledge of the animal creation, and renders it more certain and perfect; that it prevents us from aſcribing, to American animals, properties which are peculiar to thoſe of the Eaſt Indies, only becauſe they

have the ſame name; that, in examining the notices of foreign animals communicated by travellers, it will enable us to diſtinguiſh names and facts, and to refer each to its proper ſpecies; and, laſtly, that it will render the hiſtory which I am now compoſing leſs defective, and perhaps more conſpicuous and complete.

THE TIGER*.

IN the clafs of carnivorous animals, the lion holds the firft rank, and the tiger the fecond. As the firft of a bad genus is always the largeft, and has often the beft difpofitions, the fecond is generally the moft rapacious and deftructive. To pride, courage, and ftrength, the lion adds dignity, clemency, and magnanimity. But the tiger is grofsly ferocious, and cruel, without ne-

* The tiger has fix cutting, and two canine teeth in each jaw; five toes before, and four behind. The claws are fharp, hooked, lodged in a fheath, and may be exerted or drawn in at pleafure. The head is round, the vifage fhort, and the tongue rough. Both the head and body of the tiger are fmooth. He has vaft ftrength in his limbs. His colour is a pale yellow, beautifully marked with long ftripes of black, pointing from the back to the belly, and others acrofs the thighs. The tail is about one third fhorter than the body, and annulated with black. His fize is often fuperior to that of the lion. The *Royal* tiger is of a tremendous bulk. M. de Buffon mentions one that, tail included, was fifteen feet long. Du Halde fays, that the Chinefe tigers vary in colour, fome being white, ftriped with black and gray; *Pennant's Synopf. of Quad.* p. 167.

In Latin, *Tigris*; in Italian, *Tigra*; in German, *Tigerthier.*

CHAR. GEN. Dentes primores æquales; Molares, terni. Lingua retrorfum aculeata. Ungues retractiles.—CHAR. SPEC. Felis tigris, cauda elongata, corpore maculis omnibus virgatis; *Linn. Syft. Nat. p.* 61.

Tigris; *Gefner, Hift. Quad.* p. 936. *Ray, Synopf. Quad.* p. 165. *Klein, de Quad.* p. 78. *Plinii, lib.* viii. c. 18.

Felis flava, maculis longis nigris variegata. Tigris; *Briffon. Regn. Animal.* p. 268.

ceffity.

ceffity. The fame thing takes place in all nature, where rank is the offspring of ftrength. The firft, in which all power refides, is lefs tyrannical than his immediate inferior, who, unable to obtain unlimited power, avenges himfelf, by abufing that portion of it which he enjoys. Thus the tiger is more to be dreaded than the lion. The latter often forgets that he is the fovereign, or the ftrongeft of all animals. He moves forward with tranquillity and fteadinefs, and never attacks man, unlefs when provoked. He never runs with precipitation, nor gives chafe, but when preffed with hunger. The tiger, on the contrary, though fatiated with carnage, feems to be perpetually thirfting for blood. His fury has no intervals, but during the time he is obliged to lie in ambufh for prey at the fides of rivers. He feizes and tears to pieces a frefh animal with the fame rage that he exerted in devouring the firft. He defolates the country which he inhabits, and fears neither the afpect nor the arms of man. He puts to death whole flocks of domeftic animals, and all the wild beafts which come in his way: He attacks the young elephant and rhinoceros, and fometimes even ventures to brave the lion.

The form of the body generally accords with the natural difpofition. The air of the lion is noble; the height of his limbs is proportioned to the length of his body. His large thick mane, which covers his fhoulders, and forms a fhade to

his face, his determined aſpect, his grave demeanour, all concur in announcing his proud and majeſtic intrepidity. The too great length of the body of the tiger, and his diſproportionately ſhort limbs, his naked head, his haggard eyes, and his blood-coloured tongue, which always lolls out of his mouth, are marks of ignoble malice and inſatiable cruelty. He has no inſtinct but perpetual rage, a blind and undiſtinguiſhing ferocity, which often impells him to devour his own young, and to tear in pieces their mother, when ſhe attempts to defend them. May this exceſſive thirſt for blood never be allayed, till he has deſtroyed the whole race of monſters which he produces!

It is a fortunate circumſtance for the other animals, that the ſpecies of the tiger is not numerous, and appears to be confined to the warmeſt regions of the Eaſt Indies. Tigers are found in Malabar, in Siam, in Bengal, the ſame countries which are inhabited by the elephant and rhinoceros. They are even ſaid to follow the rhinoceros for the purpoſe of eating his dung *, which both refreſhes and purges them. Like him, they frequent the borders of rivers and lakes; for, as blood only augments their thirſt, they have often occaſion for water, to cool the fervour which conſumes them. Beſides, they watch

* Jac. Bontii Hiſt. Nat. Ind. Orient p. 54. Recueil des Voyages de la Compagnie des Indes, tom. vii. p. 278. Voyage de Schoutten aux Indes Orientales.

near

near the waters, the approach of animals, which the heat of the climate obliges to reſort thither ſeveral times every day. Here they procure their prey, or rather multiply their maſſacres; for they often leave the creatures they have recently killed, to devour others. They delight in blood, and glut themſelves with it till they are intoxicated. They tear the body for no other purpoſe than to plunge their head into it, and to drink large draughts of blood, the ſources of which are generally exhauſted before their thirſt is appeaſed.

When, however, the tiger kills large animals, as a horſe or a buffalo, he does not tear out their bowels on the ſpot; but, to prevent interruption, and that he may devour them at leiſure, he drags them off to the wood with ſuch incredible ſwiftneſs, that his courſe ſeems to be hardly retarded by their enormous weight *. This circumſtance is ſufficient to give an idea of his ſtrength; but it will be rendered ſtill clearer by attending to the dimenſions of his body. Some travellers have compared him to the horſe †, others to the buffalo ‡, and others have only ſaid that he is

* Jac. Bontii Hiſt. Nat. Ind. Orient. p. 53.

† Les Voyages de Dellon, p. 104.

‡ The tigers of India, ſays Boullaye-le-Gouz, are of a prodigious ſize. I have ſeen ſkins of them longer and wider than that of a buffalo. They are ſometimes addicted to eat men; and, in many parts of India, no man travels without being well armed, becauſe the tiger, whoſe figure reſembles that of a cat, raiſes himſelf on his hind-legs, and leaps upon the perſon he attacks; *Voyage de la Boullaye-le-Gouz, p.* 246, 247.

much

much larger than the lion *. But we have authorities more recent, and above all ſuſpicion. We are aſſured by M. de la Lande-Magon, that he has ſeen, in the Eaſt Indies, a tiger of fifteen feet in length, including the tail, which, ſuppoſing it to be four or five feet, the length of the body was at leaſt ten. The ſkin preſerved in the royal cabinet, it is true, exceeds not ſeven feet from the extremity of the muzzle to the origin of the tail. But the tiger to which it belonged was taken when very young, and was ever afterward confined in a narrow apartment, where the want of exerciſe and room, the languor and reſtraint of confinement, and unnatural food, ſhortened his life, and prevented the proper extenſion of his body. In the hiſtory of the ſtag †, it was remarked, that theſe animals, when taken young, and ſhut up in parks too ſmall, not only never acquired their natural ſize, but became deformed and ricketty. We likewiſe learn, from the diſſections of every ſpecies of animals brought up in houſes or court-yards, that their bodies and members, for want of exerciſe, never acquire their natural dimenſions; that ſuch organs as cannot be uſed, as thoſe of generation, are ſo minute, in all captive and ſolitary animals, that it is difficult to diſcover them. The difference of climate alone may produce the ſame effects as confinement and want of exer-

* Proſper. Alp. Hiſt. Nat. Egypt. p. 57. Wotton, p. 65.
† See vol. iv. art. Stag.

cise.

ciſe. Animals peculiar to warm climates, though left at liberty, and well fed, are incapable of multiplying in cold countries: And, reproduction being the natural effect of copious nutrition, it is evident, that, as the former faculty is deſtroyed, the latter muſt alſo be incomplete; and that, in theſe animals, cold alone is ſufficient to reſtrain the action of the internal mould, and to diminiſh growth, ſince it is capable of obliterating the power of reproduction.

It is not, therefore, ſurpriſing, that this tiger, whoſe ſkin and ſkeleton is preſerved in the royal cabinet, ſhould not have acquired its natural ſize. The bare inſpection, however, of this ſtuffed ſkin, and of the ſkeleton, conveys an idea of a moſt formidable animal. Upon the bones of the leg, there are rugoſities, or impreſſions, which indicate the attachment of muſcles ſtill ſtronger than thoſe of the lion. Theſe bones are alſo equally ſtrong, though ſhorter; and, as formerly remarked, the height of the tiger's legs is not proportioned to the great length of his body. Hence the incredible ſwiftneſs aſcribed to him by Pliny, and which is implied in the name of the animal *, cannot be attributed to his ordinary movements, nor even to the quickneſs of a continued courſe; for it is apparent, from the

* *Tigris* vocabulum eſt linguæ Armeniæ; nam ibi et ſagitta et quod vehementiſſimum flumen, dicitur *Tigris*; *Varro de Lingua Latina.*—Perſæ et Medi ſagittam *Tigrim* nuncupant; *Geſn. Hiſt. Quad. p.* 936.

ſhortneſs

ſhortneſs of his legs, that he can neither walk nor run * with ſuch celerity as thoſe animals whoſe legs are proportionally longer. But this prodigious ſwiftneſs may, with propriety, be applied to the terrible bounds which he makes without any extraordinary effort; for, if we ſuppoſe his ſtrength and ſuppleneſs to be proportioned to thoſe of the cat, which he greatly reſembles in ſtructure, and which leaps, in an inſtant, to the diſtance of many feet, the tiger, whoſe body is ten times longer, may, nearly in the ſame inſtant, leap many fathoms. Hence it is not the celerity of his courſe, but the quickneſs of his leap, which Pliny meant to deſcribe, and which renders this animal tremendous, becauſe it is impoſſible to avoid him, after he makes his ſpring.

The tiger is perhaps the only animal whoſe ferocity cannot be ſubdued. Neither violence nor reſtraint have any effect in ſoftening his temper. He is equally irritated with gentle or rough treatment. The mild influence of ſociety makes no impreſſion on the obduracy of his nature. Time, inſtead of mollifying the ferociouſ-

* The terrible ſwiftneſs, ſays Bontius, aſcribed by Pliny to this animal, is an error. On the contrary, he runs ſlowly; and this is the reaſon why he more willingly attacks men than ſwift animals, as the ſtag, the wild boar, the buffalo, or the wild ox, and why he attacks all animals by ambuſcade. He darts with impetuoſity upon their heads, and beats the ſtrongeſt animals to the ground with a ſingle ſtroke of his paw; *Bont. p.* 53. It is eaſy to reconcile theſe facts with the expreſſions of Pliny.

neſs

neſs of his humour, only exaſperates his rage. With equal wrath he tears the hand which feeds him, as that which is lifted up to ſtrike him. He roars at the ſight of every thing that lives. Every object appears to him as a freſh prey, which he devours beforehand with the avidity of his eyes, menaces with frightful groans, and the grinding of his teeth, and often darts upon it, without regarding his chains, which only reſtrain, but cannot calm his fury.

To complete the idea of the ſtrength of this animal *, we ſhall give Father Tachard's relation of a combat between a tiger and two elephants. 'A paliſade †,' ſays this author, 'of 'about a hundred paces ſquare, was erected. 'Into this incloſure two elephants were introdu-'ced, for the purpoſe of fighting a tiger. They 'were defended by a kind of plaſtron, in the 'form of a maſk, which covered the head and 'a part of the trunk. As ſoon as we arrived, a 'large tiger was brought out of his lodge. His 'colour and figure were new to the Frenchmen 'who were preſent at this combat; for he was 'not only much longer and thicker than thoſe 'we have ſeen in France, but his ſkin was dif-'ferently ſpotted. Inſtead of ſpots ſcattered

* Indi tigrim elephanto robuſtiorem multo exiſtimant. Nearchus ſcribit, indos referre tigrim eſſe maximi equi magnitudine, velocitate et viribus beſtias omnes ſuperare, elephantum etiam, inſilientem in caput ejus, facile ſuffocare; *Geſn. Hiſt. Quad.* p. 937.

† Premier Voyage de Siam, par le Pére Tachard, p. 292.

'without

'without order, he had long, broad, circular 'bands, which, ariſing from the back, joined 'below the belly, and were continued along the 'tail, in the form of alternate white and black 'rings. There was nothing peculiar in his head, 'or limbs, except that they were larger than 'thoſe of common tigers, though the animal 'had not yet acquired his full growth; for M. 'Conſtance informed us, that there were tigers 'in that kingdom three times larger; and that, 'when hunting along with the king, he had 'once ſeen a tiger nearly as large as the biggeſt 'mule. They have alſo a ſmaller kind, like 'that brought from Africa to Europe, one of 'which I was ſhown the ſame day at Luovo.

'The tiger deſtined for the combat was not 'let looſe, but was ſo fixed by two cords, that, 'having no liberty to ſpring, the firſt elephant 'which approached gave him two or three 'blows on the back with his trunk. Theſe 'ſtrokes were ſo heavy, that they beat the tiger 'to the ground, where he lay for ſome time as 'if he had been dead. But, though this firſt 'attack had abated his fury, he was no ſooner 'untied, than he gave a horrible roar, and made 'a ſpring at the elephant's trunk, which was 'ſtretched out to ſtrike him. The elephant, 'however, dexterouſly drew up his trunk, pro-'tected it with his tuſks, which he preſented at 'the ſame time, and with them he threw the

 'tiger

'tiger to a great height in the air. The tiger 'was ſo ſtunned, that he made no farther ad-'vances, but took ſeveral turns round the pali-'ſade, and ſometimes ſprung towards the people 'in the galleries. Three elephants were then 'ſet upon him, each of whom, in their turn, 'gave him ſuch blows, that he again ſeemed to 'be dead, and afterwards endeavoured only to 'avoid his enemies, who would unqueſtionably 'have killed him, if an end had not been put to 'the combat.' Even from Father Tachard's deſcription, it is plain, that the tiger he ſaw fight with the elephants was the true tiger; that he appeared to be a new animal to the Frenchmen, becauſe they had probably ſeen, in France, only African panthers or leopards, or, rather, the American jaguars; and that the ſmall tiger he ſaw at Luovo was nothing but a panther. We may likewiſe conceive, from this ſimple narrative, the amazing ſtrength and ferocity of the tiger. Though young, and not arrived at his full growth, though a captive, and bound with ropes, though ſingle againſt three; yet this tiger was ſo formidable to theſe enormous animals, that all the parts of their bodies which Nature had not defended with an impenetrable ſkin, were obliged to be covered with plaſtrons or cuſhions.

The tiger, of which an anatomical deſcription was made by the Jeſuits at China, and communicated to the Academy of Sciences by Father Gouie,

Gouie *, ſeemed to be the genuine tiger, as well as that called the *Royal Tiger*, mentioned by Perrault †, in his memoirs concerning animals, and of which he ſays the deſcription was made in Siam. Dellon, in his voyages, mentions expreſsly, that tigers are more frequent in Malabar than in any other part of the Eaſt Indies; that there are ſeveral ſpecies of them; but that the largeſt, which is as big as a horſe, and called the *Royal Tiger* by the Portugueſe, is extremely rare ‡.

The royal tiger, therefore, appears not to be a different ſpecies. He is found in the Eaſt Indies only, and not in Braſil, as has been alledged by ſome of our naturaliſts ‖. I am even inclined to believe, that the true tiger is peculiar to Aſia, and the interior parts of the ſouth of Africa; for, though moſt travellers who have viſited the

* The ſpotted tiger is the only one known in Europe. But in Tartary and China, there are tigers with black bands or belts; and, even in theſe countries, two ſpecies are mentioned, though no other differences appear to exiſt. The tiger diſſected by the Jeſuits of China, which had been killed in the chaſe by the Emperor, along with other four, weighed only 265 pounds, and, conſequently, was none of the largeſt; another of them weighed 400 pounds. The one that was diſſected had a third part of his ſtomach filled with worms, though it is not ſaid that he was in a putrid ſtate. Some of the people who were preſent remarked, that they had obſerved the ſame appearance in a tiger which was diſſected at Macao; *Hiſt. de l'Acad. des Sciences, année* 1699, p. 51.

† Mem. pour ſervir a l'Hiſt. des Anim. part ii. p. 287.

‡ Voyages de Dellon, p. 104.

‖ Regn. Anim. Briſſon. p. 269.

 coaſts

coaſts of Africa mention tigers, yet it is eaſy to perceive, from their deſcriptions, that they are not genuine tigers, but leopards, panthers, ounces, &c. Doctor Shaw remarks *, that, in the kingdoms of Tunis and Algiers, the lion and panther hold the firſt rank among the rapacious animals; but that the tiger is not found in this part of Barbary. Doctor Shaw's obſervation ſeems to be juſt; for they were Indian, not African ambaſſadors †, who preſented to Auguſtus, when at Samos, the firſt tiger that was ever ſeen by the Romans. It was alſo from India that Heliogabalus procured thoſe tigers with which he wiſhed to have his chariot drawn, when he wanted to perſonate the god Bacchus.

Thus the ſpecies of the tiger has always been more rare and leſs diffuſed than that of the lion. The female, however, like the lioneſs, produces four or five cubs at a litter. She is furious at all times; but her rage riſes to the utmoſt extremity, when robbed of her young. She then braves every danger; ſhe purſues the plunderers, who are often obliged to releaſe one, in order to retard her motion. She ſtops, takes it up, and carries it off to the neareſt cover; but ſhe inſtantly returns, and continues the purſuit after the ſpoilers to the very gates of their villages, or to their boats. When all hope of recovering them is loſt, ſhe expreſſes the exquiſiteneſs of

* Shaw's Travels.

† Deſcript. des Iſles de l'Archipel. par Dapper, p. 206.

her

her ſorrow by diſmal and hideous howlings, which excite terror wherever they reach.

The tiger, like the lion, moves the ſkin of his face, grinds his teeth, and roars; but the ſound of his voice, which has, by ſome travellers, been compared to that of certain large birds *, is different. *Tigrides indomitæ raucant, rugiuntque leones; (Autor Philomelæ).* The word *raucant* has no ſynonime in Engliſh. It is expreſſive of a hoarſe and frightful cry †.

The ſkin of theſe animals is much eſteemed, eſpecially in China. The military mandarines, in their public marches, cover their ſedans, and likewiſe their pillows, during the winter, with tigers ſkins. In Europe, theſe ſkins, though rare, are not much valued. Thoſe of the leopard of Guiney and Senegal, called *tigers ſkins* by our furriers, are preferred. Beſides, the ſkin is the only uſe that can be derived from this moſt noxious of all quadrupeds. His ſweat ‡, and the hair of his whiſkers §, are alledged to be certain poiſons to man and other animals. But he does ſo much real miſchief when alive, that it is needleſs to aſcribe imaginary evils to his remains; for the Indians eat his fleſh, and

* Second Voyage de Siam, par le P. Tachard, p. 248.

† The tigers of the eaſtern regions of Aſia are remarkably large and ſwift. Their general colour is a reddiſh yellow. Their roar, like that of the lion, raiſes horror in the hearer; *Voyage de Coreal, tom.* i. *p.* 173.

‡ Hiſt. Nat. de Siam, par Gervaiſe, p. 36.

§ La Chine Illuſtrée, par Kircher, p. 110.

find it neither unwholeſome nor diſagreeable; and, if a pill compoſed of his whiſkers is mortal, this effect is produced by the ſharpneſs and roughneſs of the hair, which acts on the ſtomach in the ſame manner as ſmall needles.

Plate CXII.

TIGER.

The PANTHER, OUNCE, and LEOPARD.

TO remove all ambiguities, ariſing from the uſe of improper names, or other cauſes, let it be remarked, that, beſide the tigers, whoſe hiſtory and deſcription I have already given, Aſia and Africa afford other three ſpecies of this genus, all different from the tiger, and from each other. Theſe three ſpecies are the *Panther*, the *Ounce*, and the *Leopard*, which naturaliſts have not only confounded with one another, but with ſpecies of the ſame genus peculiar to America. Of the latter I ſhall here take no notice, but confine myſelf ſolely to thoſe of the Old Continent.

The firſt ſpecies is the panther *, which was known to the Greeks by the name *Pardalis*, to the ancient Latins by that of *Panthera* and *Pardus*,

* The generic characters of the panther are the ſame with thoſe of all the cat kind.—The panther has ſmooth ſhort hair, of a bright tawny colour. The back, ſides, and flanks are elegantly marked with black ſpots, diſpoſed in circles from four to five in each, with a ſingle black ſpot in the centre. In the face and legs there are ſingle ſpots only. On the top of the back there is a row of oblong ſpots, the largeſt neareſt the tail. The cheſt and belly are white, the firſt being marked with tranſverſe duſky ſtripes. On the tail and belly the black ſpots are irregular. The ears are ſhort and pointed; the end of the noſe is brown; and the limbs are very ſtrong. The ſkin of one I meaſured, was, from

dus, and to the more modern Latins by that of *Leopardus*. The body of this animal, when arrived at full growth, is five or six feet long, meaſuring from the extremity of the muzzle to the origin of the tail, which is more than two feet. The baſis of the colour upon the back and ſides is of a more or leſs deep yellow, and that of the belly is whitiſh. He is marked with black ſpots, which are circular, or in the form of a roſe, detached from each other upon the ſides, hollow in the middle, and moſt of them have ſeveral leſſer ſpots, in their center, of the ſame colour. Theſe ſpots, of which ſome are oblong, and others circular, are frequently three inches in diameter. The ſpots on the head, breaſt, belly, and legs, are entire.

The ſecond ſpecies is the little panther of Oppian *, to which the ancients have aſſigned no particular name; but modern travellers have called it *Ounce*, from the corrupted term *Lynx* or *Lunx*. We ſhall adopt the name *Ounce* †, becauſe

from the extremity of the noſe, to the origin of the tail, ſix feet ten inches long, and the tail near three; *Pennant's Synopſ. of Quad. p.* 170.

Felis pardus, cauda elongata, corpore maculis ſuperioribus orbiculatis, inferioribus virgatis; *Linn. Syſt. Nat. p.* 61.

Panthera, pardus, pardalis, leopardus; *Geſner. Quad. p.* 824. *Raii Synopſ. Quad. p.* 166. *Klein. Quad. p.* 77.

* Oppian. de Venatione, lib. iii.

† The ounce has a large head, ſhort ears, and long hair on the whole body, of a whitiſh aſh-colour, tinged with yellow, which is fainter in the breaſt and belly. It is marked with ſmall

cauſe the animal has ſome affinity to the lynx. The ounce is much ſmaller than the panther, being only about three feet and a half long, which is nearly the ſize of the lynx. The length of the hair exceeds that of the panther, as well as that of the tail, which is ſometimes more than three feet in length, though the body of the ounce is, upon the whole, one third leſs than that of the panther, whoſe tail is only about two feet and a half. The ground colour of the ounce is a whitiſh gray upon the back and ſides, and the gray is ſtill whiter on the belly. But the back and ſides of the panther are always of a more or leſs deep yellow colour. The ſpots are nearly of the ſame figure and ſize in the one as in the other.

The third ſpecies is peculiar to Senegal, Guiney, and other ſouthern regions, which had not been diſcovered by the ancients; and, of courſe, they had no knowledge of this animal, which we ſhall call the *Leopard*, a name that has been im-

ſmall round ſpots. There is a large black ſpot behind each ear. The upper part of the neck is varied with large ſingle ſpots; the ſides of the back with longitudinal marks, conſiſting of ſeveral ſpots almoſt touching each other, leaving the ground colour of the body in the middle. The ſpots beneath theſe are irregular, large, and full. Thoſe on the legs are ſmall and thinly diſperſed. The tail is full of hair, and irregularly marked with large black ſpots. This ſpecies is of a ſtrong make, being long backed and ſhort legged. The length from the noſe to the tail is about three feet and a half, and that of the tail is upwards of three feet; *Pennant's Synopſ. of Quad. p.* 175.

properly

properly applied to the great panther. The leopard * is larger than the ounce, but much leſs than the panther, ſeldom exceeding four feet in length. The tail is two or two and a half feet long. The ground colour of the hair, upon the back and ſides, is yellow; that of the belly is whitiſh. The ſpots are annular, or like roſes, but much ſmaller than thoſe of the panther and ounce, and moſt of them are compoſed of four or five ſmall ſpots: Some of the latter are irregularly diſpoſed.

Theſe three ſpecies, as we have ſeen, are perfectly diſtinct. The merchants call the ſkins of the firſt ſpecies, *panther ſkins*, thoſe of the ſecond, which we have denominated the *ounce*, *African tigers ſkins*, and thoſe of the third, or leopard, though very improperly, *tigers ſkins*.

Oppian † was acquainted with the panther and ounce; of the former he remarks, that there were two kinds, the one large and the other ſmall, though the form of their bodies, and the diſpoſition of the ſpots, were ſimilar; but that they differed in the length of their tail,

* The hair of the leopard is of a lively yellow colour, marked on the back and ſides with ſmall ſpots, diſpoſed in circles, and placed pretty cloſely together. The face and legs are marked with ſingle ſpots. The breaſt and belly are covered with longer hairs than the reſt of the body, of a whitiſh colour. The ſpots on the tail are large and oblong. The length of this ſpecies, from noſe to tail, is four feet, and that of the tail, two and a half.

† Oppianus de Venatione, lib. iii.

which

which was longer in the ſmall than in the large ſpecies. The Arabs call the great panther *Nemer*, and the ſmaller kind *Phet* or *Phed*, which laſt, though a little corrupted, is the ſame with *Faadh*, and is the real Barbary name of this animal. 'The Faadh,' ſays Dr. Shaw *, 'reſembles the 'leopard (he means the panther), by having the 'ſame ſpots; but they differ in other reſpects; 'for the ſkin of the former is darker and coarſer, 'and he is not ſo ferocious as the latter." Beſides, we learn from a paſſage of Albert, commented upon by Geſner †, that the *Phet* or *Phed* of the Arabs, is denoted, in Italian, and ſome other European languages, by the word *Leunza* or *Lonza*. Hence it is evident, that the ſmall panther of Oppian, and the Arabian *Phet* or *Phed* ‡, the Barbary *Faadh*, and the European *Onze* or *Ounce*, are the ſame animal, which is alſo probably the *Pard* or *Pardus* of the ancients, and the *Panthera* of Pliny; for he ſays, that the ground colour of the panther ‖ was white, but that of the great panther, as formerly obſerved, is yellow. It is, beſides, probable, that the ſmall panther was called ſimply *Pard* or *Pardus*, and that they afterwards named the large

* Shaw's Travels. *Nota*, The Engliſh *a* is pronounced like the French *ai*, which brings Dr. Shaw's Faadh, pronounced *Faidh*, ſtill nearer to the *Fhed*.

† Geſner. Hiſt. Quad. p. 825.

‡ *Alphed*, id eſt, leopardus minor; *Albertus*.

‖ Pantheris in *candido* breves macularum oculi; *Plin. Hiſt. Nat. lib.* viii. cap. 18.

panther

panther *Leopard*, or *Leopardus*; becauſe they imagined it was a mongrel ſpecies, increaſed in ſize by mixing with that of the lion. But, as there is no foundation for this fancy, we have preferred the ſimple and primitive name *panther*, to the modern compound one, *Leopard*, which laſt we have applied to a new animal, that has hitherto been mentioned under equivocal appellations only.

Thus the ounce differs from the panther by being ſmaller, having a longer tail, and alſo longer hair, of a whitiſh gray colour; and the leopard differs from both the panther and ounce, by his brilliant yellow robe, though more or leſs deep; by the ſmallneſs of his ſpots; and by their being diſpoſed in groups, as if each of them were formed by the union of four or five.

Pliny *, and ſeveral poſterior authors, ſay, that the robe of the female panther was whiter than that of the male. This may be true of the ounce: But we have obſerved no ſuch diſtinction in the panthers kept at Verſailles, which were drawn from the life. Hence, if there is any difference between the male and female, it can neither be conſtant nor ſenſible. We have indeed perceived ſhades more or leſs ſtrong, in ſome ſkins of theſe animals; but it is probable that this difference depends more on the difference of age or of climate than upon that of ſex.

* Plinii Hiſt. Nat. lib. viii. cap. 18.

The

The animals deſcribed and diſſected by the gentlemen of the Academy of Sciences *, under the name of *Tigers*, and that deſcribed by Caius †, in Geſner, under the name of *Uncia*, are of the ſame ſpecies with our leopard. Of this not a doubt can remain, after comparing our figure and deſcription with thoſe of Caius and M. Perrault. The latter, indeed, ſays, that the animals deſcribed and diſſected by the gentlemen of the Academy under the appellation of *tigers*, were not the ounce of Caius. But the only reaſons he aſſigns are, that the ounce is ſmaller, and is not white under the belly. However, if M. Perrault had compared the deſcription of Caius with the ſubjects he examined, I am perſuaded that he would have perceived no difference between them and the ounce of Caius. But, as ſome doubts may ſtill remain, I ſhall here relate the moſt eſſential parts of Caius's deſcription, which, though made upon a dead animal, appears to be very exact ‡. It may be remarked, that Caius, without

* Memoires pour ſervir a l'Hiſtoire des Animaux, part iii. p. 3.

† Geſner. Hiſt. Quad. p. 825.

‡ Uncia fera eſt ſæviſſima, canis villatici magnitudine, facie et aure leonina; corpore cauda, pede, et unge felis, aſpectu truci: dente tam robuſto et acuto, ut vel ligna divi-dat: unge ita pollet, ut eodum contra nitentes in adverſum retineat: colore per ſumma corporis palleſcentis ochræ, per ima cineris, aſperſo undique macula nigra et frequenti, cauda reliquo corpore aliquanto obſcuriori et grandiori macula. Auris intus pallet ſine nigro, foris nigricat ſine pallore, ſi unam

without giving the precise dimensions of the animal's body, says, that it is larger than the shepherd's dog, and as thick, though it be shorter, as the bull-dog: I cannot conceive, therefore, how M. Perrault should have said, that the ounce of Caius was much smaller than the tigers dissected by the gentlemen of the Academy. These animals, from the extremity of the muzzle to the origin of the tail, measured only four feet in length. The leopard which we have descri-

unam flavam et obscuram maculam è medio eximas—Reliquum caput totum est maculosum frequentissima macula nigra (ut et reliquum corpus), nisi ea parte quæ inter nasum et oculum est, quæ nullæ sunt, nisi utrinque duæ, et eæ parvæ: Quemadmodum et ceteræ omnes in extremis et imis partibus, reliquis sunt minores: Maculæ in summis quidem crurum partibus, et in cauda, nigriores sunt et singulares, per latera vero compositæ, *quasi singulæ maculæ ex quatuor fierent*. Ordo nullus est in maculis nisi in labro *superiori, ubi ordines quinque sunt*. In primo et superiori duæ discretæ: In secundo sex conjunctæ, ut linea esse videantur. Hi duo ordines liberi sunt, nec inter se commisti. In tertio ordine octo conjunctæ sunt, sed cum quarto ubi finit commiscentur.—Nasus nigrescit, linea per longitudinem perque summam tantum superficiem inducta leniter; oculi glauci sunt—Vivit ex carne: Fœmina mare crudelior est et minor: Utriusque sexus una ad nos *ex Mauritania est advecta nave. Nascuntur in Libya*. Si quod illis cœundi statum tempus est, hic mensis Junius est: Nam hoc mas fœminam supervenit.—Ista animalia tam ferocia sunt, ut custos cum primo vellet de loco in locum movere, cogebatur fuste in caput acto (ut aiunt) semimortua reddere.—Quod scribunt esse cane longius, id mihi non videtur: Nam sunt apud nos multi canes villatici, qui longitudine æquent: Pecuario tamen et major est et longior, ut et villatico humilior; *Caius* apud *Gesner. Hist. Quadrup. pag.* 825 *et* 826.

bed,

bed, and which is unqueſtionably the ſame animal with the tigers of M. Perrault, was likewiſe about four feet long; and, if we meaſure a bull-dog, and particularly a maſtiff, we will find that he often exceeds theſe dimenſions. Thus the tigers deſcribed by the gentlemen of the Academy differ not ſo much in ſize from the ounce of Caius, as to juſtify M. Perrault's concluſion, that they were not the ſame animal. The ſecond difference is that of the colour of the hair on the belly, which M. Perrault ſays is white, and Caius aſh-coloured, that is, whitiſh. Hence theſe two characters, which induced M. Perrault to think that the tigers diſſected by the gentlemen of the Academy were not the ounce of Caius, ſhould have led him to the oppoſite concluſion, eſpecially if he had attended to the reſt of the deſcription, which perfectly agrees. We muſt, therefore, regard the tigers of the gentlemen of the Academy, the ounce of Caius, and our leopard, as the ſame animal; and I cannot conceive how ſome naturaliſts ſhould have miſtaken M. Perrault's tigers for American animals, and confounded them with the jaguar.

I conſider it, therefore, as certain, that the tigers of Perrault, the uncia of Caius, and our leopard, are the ſame animal, and that our panther is the ſame with the panther of the ancients; for, except in the ſize, our panther agrees with the ancient in every other character; and this inconſiderable

confiderable difference may be fafely afcribed to confinement and want of exercife. This difference of dimenfions at firft perplexed me. But, after a minute comparifon of the large fkins fold by the furriers with that of our panther, there could be no longer any doubt that they were the very fame creatures. The panther we have defcribed, as well as other two of the fame fpecies, kept at Verfailles, came from Barbary: The two firft were prefented to his Majefty by the regency of Algiers, about twelve years ago; and the third was purchafed by the King from an Algerine Jew.

Another remark muft be made. Of the three animals above defcribed under the appellations of the *panther*, the *ounce*, and the *leopard*, not a fingle one can be referred to the animal which naturalifts have indicated by the name of *pardus* or *leopardus*. The *pardus* of Linnæus, and the *leopard* of Briffon, which appear to be the fame animal, are defined in the following manner: *Pardus, felis cauda elongata, corporis maculis fuperioribus orbiculatis, inferioribus virgatis*; Syft. Nat. p. 61. *Leopardus, felis ex albo flavicans, maculis nigris in dorfo orbiculatis, in ventre longis, variegata*; Regn. Anim. p. 272. This character, of long fpots on the inferior parts of the body, belongs neither to the panther, the ounce, nor the leopard; and yet it is the panther of the ancients, the *panthera, pardalis, pardus, leopardus* of Gefner, the *pardus, panthera* of Profper Alpinus;

nus; in a word, the panther found in Africa and the Eaſt Indies, which theſe authors mean to point out by the above definitions. From the accurate reſearches I have made, I am perfectly ſatisfied that theſe three animals, and, perhaps, a fourth, to be afterwards mentioned, which likewiſe has not this character of long ſpots on the belly, are the only ſpecies of this genus to be found in Aſia or Africa. We muſt, therefore, hold this character of our nomenclators to be fictitious; for, in all the animals of this kind, both in the Old and New Continent, when they have long ſpots, theſe ſpots are uniformly ſituated on the ſuperior parts of the body, as the neck and back, and never on the inferior parts.

I muſt again remark, that the animal deſcribed in the third part of the *Memoires pour ſervir a l'Hiſtoire des Animaux*, *p.* 3. is neither the panther, the ounce, nor the leopard, of which I am here treating.

In fine, when peruſing the writings of the ancients, the *panther* ſhould not be confounded with the *panthera*. The *panthera* is the animal we have deſcribed; but the *panther* of Homer and other authors, is a kind of timid wolf, perhaps the jackal, as ſhall be explained in the hiſtory of that animal. Beſides, the word *pardalis* is the ancient Greek name of the true panther, and is applied indiſcriminately to both male and female. The word *pardus* is more modern, being firſt uſed by Lucan and Pliny. *Leopardus* is

is ſtill leſs ancient; for it appears to have been firſt employed by Julius Capitolinus: And *panthera* was derived from the Greek by the ancient Latins, but never uſed by the Greeks themſelves.

After diſpelling the darkneſs with which nomenclators perpetually obſcure Nature, after removing every ſource of ambiguity, by giving exact figures of the three animals of which we are treating, we ſhall now proceed to remark what is peculiar to each of them.

The panther, which we have examined alive, has a ferocious air, a reſtleſs eye, a cruel aſpect, briſk movements, and a cry ſimilar to that of an enraged dog, but ſtronger and more hoarſe. He has a rough and very red tongue, ſtrong and pointed teeth, hard ſharp claws, a beautiful ſkin, of a more or leſs deep yellow colour, variegated with black circular ſpots, or united in the form of roſes, and ſhort hair. The upper part of the tail is marked with large black ſpots, and with rings of black and white toward the extremity. He is of the ſize and make of a maſtiff dog, but his legs are not ſo long.

The relations of travellers agree with the teſtimonies of the ancients, as to the large and ſmall panther, that is, our panther and ounce. It appears, that there now exiſt, as in the days of Oppian, in that part of Africa which extends along the Mediterranean, and in thoſe parts of Aſia that were known to the ancients, two ſpecies of panthers, and moſt travellers have called the

the larger the *panther* or *leopard*, and the ſmaller the *ounce*. They all agree, that the ounce is eaſily tamed, that he is trained to hunting, and employed for this purpoſe in Perſia, and ſeveral other provinces of Aſia; that ſome ounces are ſo ſmall, that a horſeman carries them on the crupper behind him; and that they are ſo gentle as to admit of being handled and careſſed*. The panther

* The Perſians have a quadruped called the *ounce*, whoſe ſkin is ſpotted like that of a tiger; but he is very tame and gentle. A horſeman carries it on a truſs behind him; and, when he perceives an antelope, he makes the ounce deſcend, which is ſo nimble, that, in three bounds, it leaps on the neck of the antelope, though the latter runs with incredible ſwiftneſs. The antelope is a ſmall ſpecies of roe-deer, which are very numerous in this country. The ounce ſoon kills the antelope with his ſharp teeth. But, if he miſſes his blow, and the antelope eſcapes, he remains fixed on the ſpot, in a confuſed and mortified condition. In theſe moments of diſtreſs and diſappointment, an infant may apprehend him, without the leaſt reſiſtance; *Voyage de Tavernier, tom.* ii. *p.* 26.

In great hunting matches, the Perſians train ferocious animals to the chaſe, as lions, tigers, leopards, panthers, and ounces; the latter of which are called *youzze*. They do no injury to man. A horſeman carries one behind him, with its eyes covered by a cloth, and it is fixed by a chain. When the hunter perceives any game, he uncovers the animal's eyes, and turns its head to the prey. If he ſpies it, he darts upon it with great bounds, throws himſelf upon it, and brings it to the ground. If, after making a few leaps, he miſſes his object, he is diſcouraged, and commonly ſtops. The hunter takes him up, and conſoles him with careſſes.—I ſaw, in the year 1666, this kind of hunting in Hyrcania.—Some of theſe trained animals hunt with great dexterity, creeping on their bellies through hedges and bruſhwood till they are near their prey, and then darting upon them; *See Voyage de Chardin en Perſe, &c. tom.* ii. *p.* 32. *Voyage atour du*

panther ſeems to be of a more fierce and untractable nature. Man may be ſaid rather to ſubdue than to tame him. He never loſes entirely his ferocious diſpoſition *; and, when deſtined for the

du Monde de Gemelli Carreri, tom. ii. *p.* 96. 212. where, however, this author ſeems to have borrowed many things from Chardin.

Quo tempore perveni Alexandriam, duos pardos. . . . vidi apud Antonium Calepium. . . . uſque adeo cicures erant et manſueti, ut ſemper in lectulis decumbentes dormiebant—Carne eos nutriebat: Sæpe a nobis cum pardo ibatur ad venandas gazellas, et pugnam inter ipſos pulcherrimam quæ fiebat admirabamur, præſertim gazellæ artificium cum pardo cornibus duriſſimis armatæ pugnando, ſed eam tamen multo fatigatam atque ex pugna admodum defeſſam interimebat. Cairi poſtea vidimus quandam mulierem quinque catulos recentes a panthera effuſos, ex Arabe cœmiſſe, eoſque ut feles aluiſſe.—Erant omnino viſu pulcherrimi, albicabant colore maculis parvis rotundis toto corpore variati—Parum quidem differentiæ inter pardum et pantheram obſervavimus intercedere: panthera quidem major et toto corpore eſt et capite, atque multo ferocior; *Proſp. Alp. Hiſt. Egypt. part.* i. *p.* 238. Accepi a quodam occulato teſte, in aula regis Galliarum, leopardus duorum generum ali; magnitudine tantum differentes, majores vituli corpulentia eſſe, humiliores, oblongiores; alteros minores ad canis molem accedere, et unum ex minoribus aliquando ad ſpectaculum regi exhibendum, a beſtiario aut venatore, equo incidente a tergo ſuper ſtragulo aut pulvino vehi, allegatum catena, et lepore objecto dimitti, quem ille ſaltibus aliquot bene magnis aſſecutus jugulet; *Geſner, Hiſt. Quad. p.* 831.—Emmanuel King of Portugal ſent to Leo X. a panther trained to the chaſe; *Hiſt. des Conquêtes des Portugais par le P. Lafiteau, tom.* i. *p.* 525. This panther was an ounce; for the author likewiſe ſays, that, in Perſia, they uſe the ounce or panther for hunting antelopes; that theſe animals were brought from Arabia; and that they were ſo tame as to be carried on the crupper of a horſe.

* Tigris ex Ethiopia in Egyptum convectos vidimus, etſi nullo

the chaſe, great attention is neceſſary in training him, and ſtill greater caution is requiſite in conducting and exerciſing him. He is led in a cart, ſhut up in a cage, the door of which is opened when game appears. He ſprings towards the animal, and generally, at three or four bounds, ſeizes and ſtrangles it; but, if he miſſes his blow, he becomes furious, and ſometimes attacks his maſter, who commonly prevents this hazard, by carrying along with him pieces of fleſh, or live animals, as lambs or kids, one of which he throws to him to appeaſe his rage.

The ſpecies of the ounce ſeems to be more numerous and more diffuſed than that of the pan-

nullo modo cicuratæ hæ manſueſiant, neque unquam ferinam naturam relinquant; ſunt leænis quam ſimiles et forma et colore albicante, rotundis maculis fulveſcentibus variatæ, ſed leænis longe majores ſunt; *Proſp. Alp. Hiſt. Egypt. p.* 237.—When the hunter diſcovers the antelopes, he endeavours to ſhow them to the leopard, which is chained upon a ſmall cart. This cunning animal does not inſtantly run at them, as might be imagined, but winds about, creeping and concealing himſelf, in order to approach and ſurpriſe them; and, as he is capable of making five or ſix ſprings with incredible rapidity, when he has advanced near enough, he darts upon them, ſtrangles them in an inſtant, and gluts himſelf with their blood, their heart, and their liver. But, if he miſſes his aim, which ſometimes happens, he ſtands ſtill, and never attempts to purſue them, which would be in vain; for they run much ſwifter and longer than he is able. His maſter then approaches him gently, flattering and amuſing him with pieces of fleſh, till he throws a cover over his eyes, puts on his chain, and conducts him back to the cart; *Voyage de Bernier, dans le Mogol. tom.* ii. *p.* 243. This deſcription can only apply to the large panther; becauſe no ſuch precautions are neceſſary with the ounce.

 ther.

ther. Ounces are very common in Barbary, Arabia, and all the ſouthern parts of Aſia, Egypt perhaps excepted *. They even extend as far as China, where they are called *hinen-pao* †.

The ounce is uſed for hunting in the warm climates of Aſia; becauſe dogs are very ſcarce in theſe countries ‡, having hardly any but what are tranſported thither, and even theſe loſe, in a ſhort time, their voice and their inſtinct. Beſides, the panther, the ounce, and the leopard, have ſuch an antipathy to dogs, that they attack them preferably to all other animals §. In Europe, our hunting dogs have no enemy but the wolf. But, in countries filled with tigers, lions, panthers, leopards, and ounces, which are all ſtronger and more cruel than the wolf, it is impoſſible to preſerve dogs. The ſcent of the ounce is not near ſo fine as that of the dog. He neither follows animals by their foot, nor is he able

* There are no lions, tigers, or leopards, in Egypt; *Deſcript. de l'Egypte, par Maſcrier. tom.* ii. *p.* 125.

† *Hinen-pao* is a kind of leopard or panther found in the province of Pekin. He is not ſo ferocious as the tiger, and the Chineſe are very fond of him; *Relation de la Chine, par Thevenot, p.* 19.

‡ As the Moors at Surat, and on the Malabar coaſts, have no dogs to hunt the antelopes and fallow-deer, they endeavour to ſupply this defect, by taming and training leopards. Theſe animals attack their prey with great addreſs, and, after ſeizing it, they never quit, but remain firmly fixed upon it; *Voyage de Jean Ovington, tom.* i. *p.* 278.

§ The leopards are mortal enemies to the dogs, and devour them as often as they meet with them; *Voyage de la Maire, p.* 99.

to overtake them in a continued chaſe. He hunts ſolely by the eye, and makes only a few ſprings at his prey. He is ſo nimble, that he eaſily clears a ditch or a wall of many feet. He often climbs trees to watch paſſing animals, and ſuddenly darts down upon them. This mode of ſeizing prey is common to the panther, the leopard, and the ounce.

The manners and diſpoſitions of the leopard* are the ſame with thoſe of the panther. But I learn

* The Guiney leopard is generally of the ſize and ſtature of a large bull-dog. He is very ferocious, and incapable of being tamed. He attacks with fury every kind of animal, man not excepted. Neither the tigers nor lions of the Guiney coaſt do any injury to man, unleſs they are extremely preſſed with hunger. The leopard partakes ſomething of the lion and ſomething of the large wild cat. His ſkin is all marked with round ſpots of different ſhades of blackneſs upon a grayiſh ground. His head is of a middle ſize, his mouth is large and well armed with teeth, of which the women of that country make necklaces. His tongue is equally rough as that of the lion. His eyes are fiery, and continually in motion. His aſpect is cruel, and indicates a perpetual thirſt for blood. His ears are round, ſhort, and always erect. He has a thick ſhort neck, ſtrong thighs, large feet, five toes on the fore and four on the hind feet, both armed with ſtrong ſharp claws, which he ſhuts like the fingers of a hand, and never looſes them from his prey till he has torn it in pieces, both with his claws and teeth. Though very rapacious and gluttonous, he is always meager. The leopards multiply very faſt; but the tiger, who is ſtronger and more alert, is their deadly foe, and deſtroys great numbers of them. The negroes take the tiger, the leopard, and the lion, by means of deep pits covered with reeds and a little earth, upon which they place ſome dead animal as a bait. *Voyage de Deſmarchais, tom.* i. *p.* 202.—The tiger of Senegal is more furious than the lion. He is nearly

learn not that he has ever been tamed like the ounce, or that the Negroes of Senegal or Guiney, where he is very common, ever uſe him for hunting. He is generally larger than the ounce and ſmaller than the panther. His tail, though two or two and a half feet long, is ſhorter than that of the ounce.

The leopard of Senegal and Guiney, to which we have particularly applied the name of *leopard*, is probably the animal called *Engoi* * at Congo, and perhaps alſo the *Antamba* † of Madagaſcar. We mention theſe names, becauſe it would increaſe our knowledge of animals, if we had liſts of the names given them in the language of the countries they inhabit.

The ſpecies of the leopard appears to be ſubject to greater varieties than that of the panther or ounce. We have examined a greater number of leopards ſkins, which differed from each other,

nearly about the length and height of a greyhound. He attacks, indiſcriminately, man and all other animals. The negroes kill him with their darts and arrows, in order to procure his ſkin. Though their bodies be pierced in many places, they defend themſelves to the laſt drop of their blood, and often deſtroy ſome of the aſſailants; *Voyage de la Maire, p.* 99.

* The tigers of Congo are called *Engoi*; *Drake's Voyages, p.* 105. *Recueil des Voyages qui ont ſervir à l'Etabliſſement de la Compagnie des Indes, tom.* iv. *p.* 326.

† The Madagaſcar antamba is an animal as large as a dog, with a round head, and, according to the relations of the Negroes, reſembles the leopard. It devours both men and cattle, and is found only in the moſt deſert parts of the iſland; *Voyage de Madagaſcar, par Flacourt, tom.* i. *p.* 154.

either

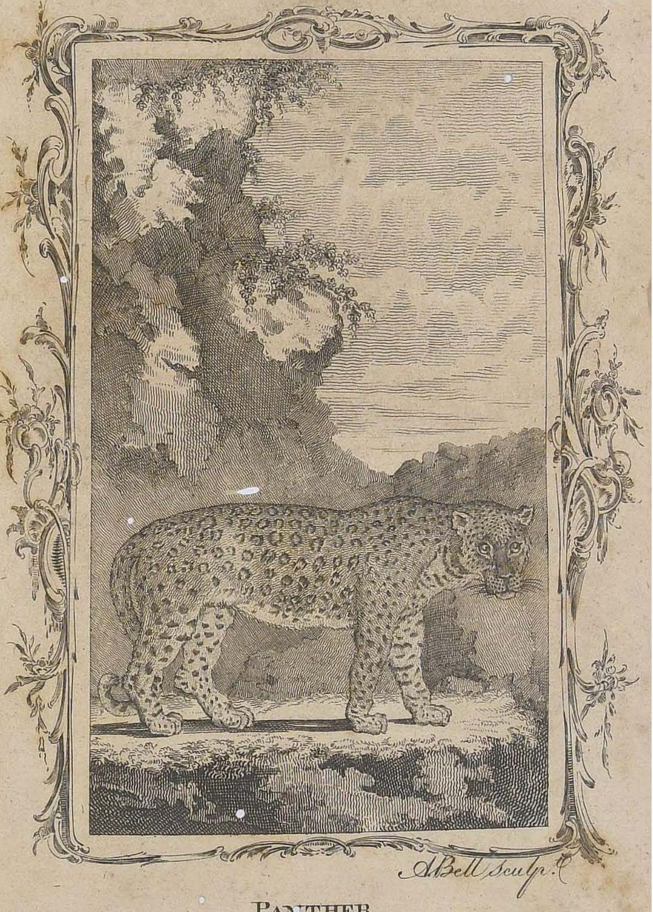
either in the ſhades of the ground-colour, or in thoſe of the annular ſpots, ſome of which were more diſtinctly defined than others. But theſe rings are always ſmaller than thoſe of the panther or ounce. In all leopards ſkins, the ſpots are nearly of the ſame ſize and figure; and their chief difference conſiſts in the deepneſs or lightneſs of their colours. The ground-colour of the ſkin differs only by being of a more or leſs deep yellow. But, as all theſe ſkins are nearly of the ſame ſize, both in the body and tail, it is probable that they belong to the ſame ſpecies of animal.

The panther, the ounce, and the leopard, inhabit Africa, and the warmeſt climates of Aſia only. They have never ſpread over the northern, or even the temperate regions. Ariſtotle mentions the panther as an African and Aſiatic animal, and ſays expreſsly, that it exiſted not in Europe. Hence theſe animals, which ſeem to be confined to the Torrid Zone of the Old Continent, could never paſs over to the New by the northern lands; and we ſhall find, by the deſcriptions we are to give of the American animals of this genus, that they are different ſpecies, and ought not to be confounded, as moſt of our nomenclators have done, with thoſe of Aſia or Africa.

Theſe animals, in general, delight in the thickeſt foreſts, and often frequent the banks of rivers, and the environs of ſequeſtrated habitations, where they endeavour to ſurpriſe domeſtic animals,

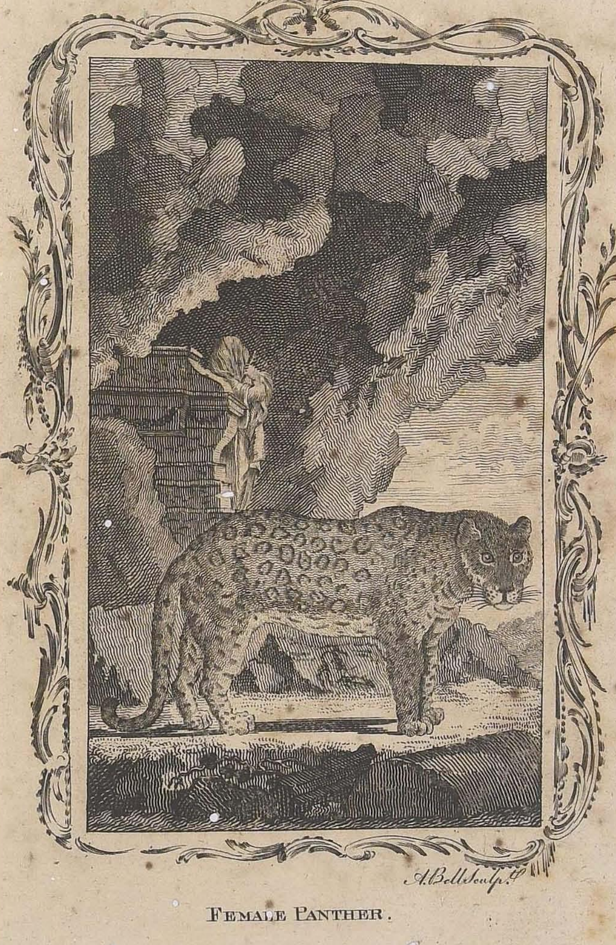
mals, and the wild beafts which come to the rivers in queft of water. They feldom attack men, even when provoked. They climb trees with great eafe, where they purfue cats, and other animals, which feldom efcape them. Though they live folely on prey, and are commonly meagre, travellers pretend that their flefh is not bad. It is, indeed, eaten by the Indians and Negroes; but they prefer the flefh of the dog, which they confider as the moft delicious food. With regard to their fkins, they are all valuable, and make excellent furs. The moft beautiful and deareft is that of the leopard, one of which, when the yellow is bright, and the fpots very black and well defined, cofts eight or ten louis-d'ors.

Plate CXIII.



PANTHER.

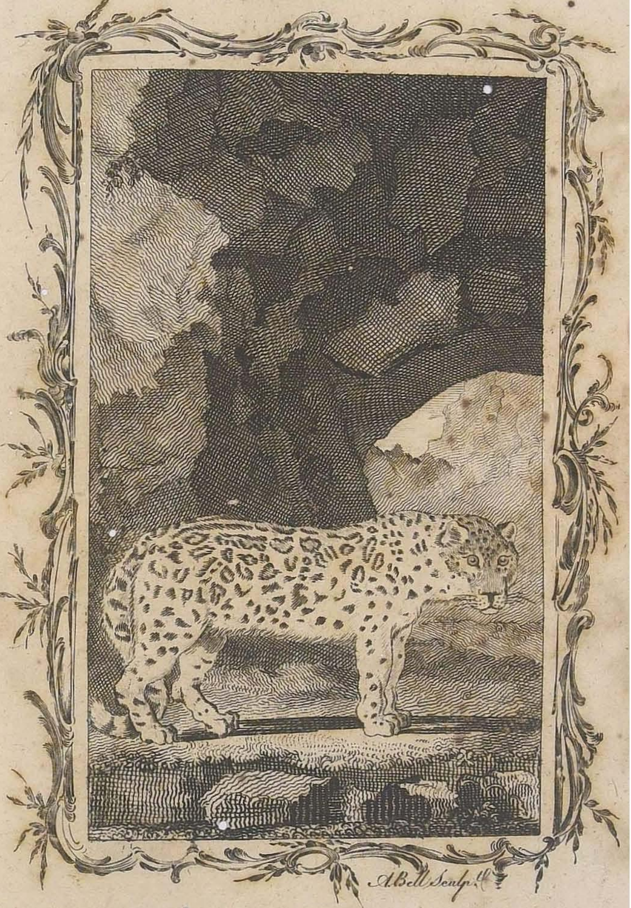
Plate CXIV.



A. Bell Sculp.

FEMALE PANTHER.

Plate CXV.



A Bell Sculp.t

Ounce.

Plate CXVI.

LEOPARD.

THE JAGUAR*.

THE jaguar reſembles the ounce in ſize of body, in the figure of moſt of the ſpots, and even in diſpoſitions. He is not ſo bold as the leopard or panther. Like the leopard, the ground-

* The hair of the jaguar, or Braſilian cat, is of a bright tawny colour. The top of the back is marked with long ſtripes of black, and the ſides with irregular oblong ſpots, open in the middle, which is the ground-colour of the hair. The thighs and legs are marked with full black ſpots. The breaſt and belly are whitiſh, and the tail not ſo long as the body: The upper part is a deep tawny, marked irregularly with large black ſpots, the lower part with ſmaller ſpots. It grows to the ſize of a wolf, and even larger; *Pennant's Synopſ. of Quad, p.* 176.

The *jaguar* or *jaguara* is the Braſilian name of this animal, which we have adopted to diſtinguiſh it from the tiger, the panther, the ounce, and the leopard, with which it has often been confounded. It was called *janou-are*, or *janouar*, by the firſt hiſtorians of the New World. Piſo and Marcgrave firſt wrote jaguara, inſtead of *janouara*. The Mexicans called it *Tlatlauhqui occlotl*, according to Hernandes, p. 498. The Portugueſe called it *onça*, becauſe it had ſome reſemblance to that animal.

Jaguara; *Piſon. Hiſt. Nat. p.* 103.

Jaguara Braſilienſibus; *Marcgrav. Hiſt. Braſil. p.* 235.

Pardus an Lynx Braſilienſis, *jaguara* dicta Marcgravii; *Raii Synopſ. Quad. p.* 168.

Tigris Americana jaguara Braſilienſis; *Klein. Quad. p.* 168.

Tigre de la Guiane; *Voyage de Deſmarchais, tom.* iii. *p.* 299.

Tigris Americana, Felis flaveſcens, maculis nigris orbiculatis, quibuſdem roſam referentibus, variegata; *Briſſon. Quad. p.* 169.

Felis

ground-colour of his hair is a beautiful yellow, and not gray like the ounce. His tail is ſhorter than that of either of theſe animals: His hair is longer than that of the panther, and ſhorter than that of the ounce: It is criſped when young, and ſmooth when he arrives at full growth. We have never ſeen this animal alive; but had one ſent us well preſerved in ſpirits; and it is from this ſubject that our figure and deſcription have been taken. It had been taken young, and brought up in the houſe till it was two years old, when it was killed, in order to be tranſmitted to us *. It had not, therefore, acquired its natural dimenſions. But, it is evident, from the bare inſpection of this animal, that, when full grown, he could not exceed the ſize of an ordinary dog. This animal, however, is the moſt formidable, the moſt cruel, in a word, he is the tiger of the

Felis onca, cauda mediocri, corpore flaveſcente, ocellis nigris rotundato-angulatus, medio flavis; *Linn. Syſt. p.* 62.

* This animal was ſent to us by M. Pagés, King's phyſician at St. Domingo, under the name of *Chat-tigre*. M. Pagés remarks in his letter, that this animal was brought from the Continent, where it is very common, to St. Domingo, in a Spaniſh veſſel. He adds, that it was two years of age when he ordered it to be killed; that it had ſwelled in the ſpirits; that it eat, drank, and uttered the ſame cry as the wild cat, and that it mewed, and preferred fiſh to fleſh: Piſo and Marcgrave likewiſe tell us, that the jaguars of Braſil are very fond of fiſh. The chat-tigre, ſays Dampier, *tom.* iii. *p.* 306. which is very common in the Bay of Campeachy, has ſhort legs, and a contracted body, like that of the maſtiff; but, in the form of his head, the colour of his hair, and the manner of watching his prey, he reſembles the tiger.

New

New World, where Nature ſeems to have contracted every kind of quadruped. Like the tiger, the jaguar lives on prey. But a light is ſufficient to make him fly; and, when his ſtomach is full, he ſo entirely loſes all courage and vivacity, that he runs before a ſingle dog. He is neither nimble nor active, but when preſſed with hunger *. The ſavages, who are naturally poltroons, are afraid to encounter him. They alledge, that he prefers them to the Europeans, whom he never attacks †. The leopard is likewiſe ſaid to prefer the Blacks to the Whites ‡, whom he is ſuppoſed to diſtinguiſh by the

* There are tigers in Braſil which, when agitated by famine, are very bold; but, after a full meal, they become ſo cowardly, that they inſtantly fly from the dogs; *Deſcript. des Indes Orientales, par Herrera, p.* 252. The ſame remark is to be found in *l'Hiſt. des Indes par Maffée, p.* 69. There are tigers about Porto-bello, the environs of which are very woody and deſert. Theſe tigers appear to be of a ſmall ſpecies; for a ſingle man, when the animal is about to attack him, often cuts off its paws one after another; *Voyage de Dom Juan et Dom Antoine de Ulloa*; *Extrait de la Bibliotheque Raiſonné, tom.* xliv. *p.* 413.

† I have heard that theſe tigers had an antipathy againſt the Indians; that they ſeldom or never attack the Spaniards; and that they ſometimes pick out and carry off an Indian when ſleeping in the midſt of Spaniards; *Hiſt. Nat. des Indes, par Joſeph Acoſta, p.* 190.

‡ In the province of Bamba, in the kingdom of Congo, there are tigers which never attack white men, but often ruſh upon the Negroes: When a Negroe and a white man are ſleeping near each other, theſe animals run with fury upon the Negro, without injuring the White; *Drake's Voyage round the World, p.* 105.

the ſmell, and attacks them during the night as well as the day.

Almoſt all the authors who have written the hiſtory of the New World mention this animal; ſome under the name of the *tiger* or *leopard*, others under the names given them in Braſil, Mexico, &c. Piſo and Marcgrave, who firſt deſcribed him fully, called him *jaguara*, inſtead or *janouara*, his Braſilian name *. They have alſo mentioned another animal of the ſame genus, and perhaps of the ſame ſpecies, under the name of *jaguarette*. Like theſe two authors, we have diſtinguiſhed the jaguar from the jaguarette; becauſe they appear to be animals of a different ſpecies. However, as we have ſeen one of theſe animals only, we cannot determine whether they are two diſtinct, or a variety of the ſame ſpecies. Piſo and Marcgrave remark, that the jaguarette is diſtinguiſhed from the jaguar by having ſhorter, more bright, and differently coloured hair, which is black, variegated with ſpots of a ſtill deeper black. But, in every other particular, he reſembles the jaguar

* In Braſil there is a rapacious animal which the ſavages call *janou-ara*, and has limbs nearly as high as thoſe of the greyhound; but he has great whiſkers and a beautiful ſkin, variegated like that of the ounce, whom he very much reſembles in every other reſpect; *Voyage de Jean de Lery, p.* 162.—The janouar is a kind of ounce, as large as an Engliſh bull-dog, with a fine ſpotted ſkin; *Miſſion des Capucins, par le Père d'Abbeville, p.* 251.—The janouara of Braſil lives on prey only. He is of the ſtature of a greyhound, and his ſkin is ſpotted; *Voyage de Coreal, tom.* i. *p.* 173.

 ſo

ſo ſtrongly in the figure of his body, manners, and temper, that he may ſtill be only a variety of the ſame ſpecies; eſpecially as Piſo informs us, that, in the jaguar, the ground colour of the hair, and that of the ſpots, vary in different individuals of this ſpecies. He ſays, that ſome are marked with black, and others with red or yellow ſpots: And, with regard to the difference of gray, yellow, or black colours, the ſame thing takes place in other ſpecies of animals. There are black wolves, black foxes, black ſquirrels, &c. If ſuch variations are rarer among wild than domeſtic animals, the phænomenon muſt be aſcribed to the former being liable to fewer accidents which can produce ſuch changes. As the life of the former is more uniform, their food leſs various, and their liberty greater than thoſe of the latter, their nature muſt likewiſe be more conſtant, or leſs ſubject to accidental alterations in colour.

The jaguar is found in Braſil, in Paraguay *, Tucuman †, Guiana ‡, in the country of the Amazons §, in Mexico ‖, and in all the regions

* Hiſt. de Parag. par Charlevoix, tom. i. p. 31. 171. tom. iv. p. 95.

† Id. ibid.

‡ Voyage de la France Equinoxiale, par Binet, p. 343. et Deſmarchais, tom. iii. p. 299.

§ We find the janouar in Maragnon; *Hiſt. de la Miſſion des Capucins dans l'Iſle du Maragnon, par le P. d'Abbeville, p.* 251.

‖ In the Mexican mountains, there is an animal called *ounce*, of the ſize and figure of the lynx, but whoſe claws and head have a greater reſemblance to thoſe of the tiger; *Roger's Voyage, tom.* ii. *p.* 42.

of

of South America. It is, however, more rare in Cayenne than the couguar, which has been called the *red tiger*; and the jaguar is not now ſo common in Braſil, which is its native country, as formerly. A price has been ſet on his head; numbers of this ſpecies have accordingly been deſtroyed; and the reſt have retired from the coaſts into the moſt deſert parts of the country*. The jaguarette has always been leſs common, or, at leaſt, has kept at a greater diſtance from the habitations of men†; and the few travellers who mention this animal ſeem only to copy Marcgrave and Piſo.

SUPPLEMENT.

WE here give a figure of an animal, which belongs to the ſpecies of the leopard, or jaguar. The drawing was ſent to us by the deceaſed Mr. Colinſon, without either name or hiſtory. As we are ignorant whether it is a native of the Old or New Continent, and as it differs from the ounce and leopard by the form of its ſpots, and ſtill more from the jaguar and ocelot, we could not determine to which of theſe animals it may be referred. It appears, however, to have a greater relation to the jaguar than to the leopard.

* Dampier, tom. iv. p. 69.
† Voyage de Deſmarchais, tom. iii. p. 300.

The

The JAGUAR of NEW SPAIN.

In the month of June 1775, a female jaguar was ſent to M. le Brun from New Spain. It was very young; for all its teeth had not yet appeared, and it has ſince grown larger at Chaillot, where M. de Seve made a drawing of it in the beginning of October. We ſuppoſe it to be about nine or ten months old. His length, from the muzzle to the anus, was one foot eleven inches, and the height of his hind train from thirteen to fourteen inches. The jaguar deſcribed in the original work, was two feet five inches four lines long, and the height of the hind train one foot four inches nine lines: But it was two years of age. Though belonging to different countries, there is a great ſimilarity between theſe two animals. The differences in the form of the ſpots ſeem to be individual varieties only. The iris is of a brown colour inclining to green; the edges of the eyes are black, with a white band both above and below. The colour of the head is yellow blended with gray, which is alſo the ground-colour of the ſpots; and the latter are bordered with black bands. Theſe ſpots and bands are grounded on a dirty reddiſh white colour, inclining more or leſs to gray. The ears are black, with a very large white ſpot on their external part. The tail is long, and well covered with hair.

 The

The JAGUAR of GUIANA.

M. Sonini de Manoncour has made ſome excellent remarks on the jaguars of Guiana, which I ſhall here tranſcribe:

'The hair of the young jaguar,' ſays he, 'is 'not criſped, as M. de Buffon alledges. I have 'ſeen young jaguars with hair as ſmooth as that 'of adults. This obſervation has been con'firmed by the moſt experienced hunters. With 'regard to their ſize, inſtead of equalling only, 'as M. de Buffon remarks, that of an ordinary 'dog, I have had two ſkins, which I was aſſured 'belonged to ſubjects of two or three years old, 'and one of them meaſured near five feet from 'the muzzle to the tail, which was two feet 'long. I have myſelf ſeen, in the foreſts of 'Guiana, tracks of theſe animals, which induced 'me, as well as M. de la Condamine, to think, 'that the American animals called tigers were 'as large as thoſe of Africa. I even think, that, 'except the true, or royal tiger, the American 'tiger is the largeſt animal to which this ap'pellation is given; ſince, according to M. de 'Buffon, the panther, which is the largeſt of 'theſe animals, exceeds not, when full grown, 'five or ſix feet in length; and it is certain 'that there are quadrupeds of this kind which 'greatly ſurpaſs theſe dimenſions. The colour 'of the jaguar varies with age. When young,

'he

'he is of a very deep yellow, approaching to red, 'or even brown. This colour brightens in pro-'portion as the animal increaſes in years.

'The jaguar is not that indolent animal he 'has been repreſented by ſome travellers, whom 'M. de Buffon has copied. Inſtead of being 'afraid of dogs, he ſprings upon them wherever 'he meets them. He makes great havock 'among the flocks. Thoſe which inhabit the de-'ſerts of Guiana are even formidable to men. 'In a journey I made through theſe great foreſts, 'we were tormented two nights ſucceſſively by 'a jaguar, notwithſtanding a large fire, which 'was kept perpetually blazing. He roamed 'continually round us; and we found it impoſ-'ſible to ſhoot him; for we no ſooner aimed at 'him than he diſappeared in a moment, then re-'turned on the other ſide, and in this manner 'kept us in perpetual alarm. Notwithſtanding 'all our vigilance, we could never ſhoot him. 'He continued theſe manœuvres during two 'complete nights. He returned on the third: 'But, ſeemingly diſguſted by not obtaining his 'end, and perceiving that we had augmented 'our fire, which he was afraid to approach too 'near, he left us with dreadful howlings. His 'cry, *hou*, *hou*, is ſomewhat plaintive, grave, 'and ſtrong, like that of the ox.

'With regard to the ſuppoſed predilection of 'the jaguar to the natives of the country, rather 'than to the Negroes or Whites, I ſuſpect

'ſtrongly that it is fabulous. I found this no-
'tion eſtabliſhed at Cayenne: But I travelled
'along with ſavages through places where the
'largeſt tigers are common, and never diſco-
'vered that they entertained any remarkable
'degree of terror at theſe animals. Like us,
'they ſuſpended their hammocks on trees, re-
'moved to a certain diſtance from us, and con-
'tented themſelves with kindling a ſmall fire,
'which frequently went out in the courſe of the
'night. Theſe ſavages, however, were inha-
'bitants of the interior parts of the country,
'and, conſequently, knew the danger they had
'to apprehend. I can aſſure you, that they
'took no precautions, and appeared to be very
'little affected, though ſurrounded with theſe
'animals.'

Here I cannot help remarking, that this laſt fact proves that theſe animals are not very dangerous, at leaſt to men.

'The fleſh of the jaguar is not good to eat.
'He combats, with advantage, all the quadru-
'peds of the New Continent, who fly from him
'with terror. The ant-eater, though he has no
'teeth to defend himſelf, is the moſt cruel
'enemy the jaguars have to encounter. As
'ſoon as the jaguar attacks the ant-eater, it lies
'down on its back, and ſeizes and ſuffocates
'him with its long claws.'

Plate CXVII.

JAGUAR.

Plate CXVIII

A. Bell Sculpt.

JAGUAR or LEOPARD.

Plate CXIX.

A. Bell Sculp.t

JAGUAR of NEW SPAIN.

THE COUGUAR*.

THE couguar is as long, but not ſo thick, as the jaguar; his legs are alſo longer, and he has more the ſhape of a greyhound. His head is ſmall, his tail long, and his hair of nearly a uniform colour, being of a lively red, mixed with a little tincture of black, eſpecially on the back. He has no ſpots like thoſe of the tiger, the leopard, the ounce, and the panther. His chin, throat, and all the inferior parts of his

* The couguar, or brown cat, has a very little head, ſmall pointed ears, large eyes, a white chin, and the back, neck, rump, and ſides, of a pale browniſh red colour, mixed with duſky hairs. The breaſt, belly, and inſide of the legs, are cinereous. The hair on the belly is long; the tail is duſky and ferruginous, but black at the tip. The teeth are of a vaſt ſize, and the claws are white, the outmoſt one of the fore-feet being much longer than the others. It is long bodied, and high on its legs. The length from noſe to tail is five feet three inches, and that of the tail two feet eight; *Pennant's Synopſ. of Quad. p.* 179.

The couguar, which we have contracted from the Braſilian name *caguacu ara*, pronounced *cougouacouare*, is called the *red tiger* in Guiana.

Cuguacu ara; *Piſon, Hiſt. Nat. p.* 105.

Cuguacu arana; *Marcgravii Hiſt. Braſil. p.* 245.

Cuguacu arana Braſilienſibus; *Raii Synopſ. Quad. p.* 169.

Tigris fulvus; *Barrère, Hiſt. Franc. Equinox. p.* 166.

Felis ex flavo rufeſcens, mente et infimo ventre albicantibus . . . . Tigris fulva. Le tigre rouge; *Briſſon, Regn. Anim. p.* 272.

The American tiger, whoſe ſkin is brown, and without ſpots; *Voyage de la Condamine ſur la Riviere des Amazones, p.* 162.

body,

body, are whitiſh. Though weaker, he is equally ferocious, and, perhaps, more cruel than the jaguar. He appears to be ſtill more rapacious *; for he devours his prey without tearing it in pieces. As ſoon as he ſeizes an animal, he kills, ſucks, and eats it ſucceſſively, and never quits it till he is fully gorged.

Theſe animals are very common in Guiana. Great numbers of them were formerly ſeen ſwimming from the Continent to the iſland of Cayenne †, in order to devour the flocks. They were, at firſt, a great ſcourge to the colony; but, by hunting and deſtroying them, they have gradually retired to a diſtance from the more cultivated parts of the country. They are found in Braſil, Paraguay, and the Amazon country; and it is probable, that the animal mentioned by ſome travellers, under the name of *ocorome* ‡, is the ſame with the couguar, as well as the Iroquois animal ||, which has been regarded as a tiger,

* Cuguacu-arana, the red, or rather bay tiger, is the moſt inſatiable and rapacious of all American animals; *Barrère, Hiſt. de la France Equinox. p.* 166.

† Voyage de Deſmarchais, p. 300.—The colony of Cayenne has not a greater ſcourge than that of the tigers; *Roger's Voyage, tom.* iii. *p.* 28.

‡ The ocorome of Peru is of the ſize of a large dog. His hair is red, his muzzle pointed, and his teeth very ſharp; *Lettres Edifiantes, Recueil* x. *Voyages de Coreal, tom.* ii. *p.* 352.

|| We find in the Iroquois country, tigers of a grayiſh colour, but not ſpotted. They have a long tail, and hunt the porcupine. The Iroquois kill them more frequently on trees than on the ground . . . Some of them have reddiſh hair, and,

tiger, though he is neither ſpotted like the panther, nor marked with long bands like the tiger.

The couguars, by the lightneſs of their body, and the length of their limbs, ſhould be more ſwift, and climb trees with greater facility, than the jaguar. When gorged with prey, they are both equally indolent and cowardly. They ſeldom attack men, unleſs they find them ſleeping. When men paſs the night in the woods, the kindling a fire is ſufficient to prevent the approach of theſe animals *. They delight in the ſhades of large foreſts. They conceal themſelves in the thickets, or even in a buſhy tree, from which they dart upon animals as they paſs. Though they live on prey only, and drink blood oftener than water, their fleſh is ſaid to be very good. Piſo ſays, that it is as good as veal †, and others compare it to mutton ‡. I can hardly believe that the fleſh of this animal is good, eſpecially as Deſmarchais affirms ||, that

and, in all of them, it is very fine, and their ſkins make excellent furs; *Charlevoix, tom.* i. *p.* 272.

* The Indians on the banks of the Oroonoko in Guiana, kindle fires during the night to intimidate the tigers, who never approach as long as the fire burns; *Hiſt. Nat. de l'Orenoque, par le Pere Joſeph Jumilla, tom.* ii. *p.* 3.

† Nec eſt, quod aliquis putet à Barbaris tantum expeti carnem horum rapacium animalium: Illæ enim quæ rufeſcentibus et flaveſcentibus maculis ſunt, ab omnibus paſſim Europeis incolis, inſtar vitulinæ, æſtimatur; *Piſon. Hiſt. Nat. p.* 103.

‡ The fleſh of the Iroquois tigers, even in the eſtimation of the French, is as good as mutton; *Charlevoix, tom.* i. *p.* 272.

|| Voyage de Deſmarchais, tom. iii. p. 299.

 the

the ſkin is the only part of him which is valuable, and that his fleſh is generally lean, and of a diſagreeable flavour.

SUPPLEMENT.

IN the original work, we gave the figure of a male couguar, and we now add that of the female, which we had an opportunity of drawing a few years ago.

The COUGUAR of PENNSYLVANIA.

The jaguar, as well as the couguar, inhabits the warmeſt regions of South America. But there is another ſpecies of couguar (of which we have given a figure) found in the temperate climates of North America, as on the mountains of Carolina, Georgia, Pennſylvania, and the adjacent provinces. The drawing of this couguar was ſent me from England by the late Mr. Colinſon, with the following deſcription: If it is exact, this couguar muſt differ greatly from the common kind.

'The couguar of Pennſylvania,' ſays Mr. Colinſon, 'differs much from the couguar of Cayenne (above deſcribed). His limbs are ſhorter, 'his

'his body much longer, and his tail is alſo three 'or four inches longer. But, in the colour of the 'hair, and the form of the head and ears, they 'have a perfect reſemblance to each other. The 'couguar of Pennſylvania,' adds Mr. Colinſon, 'is an animal remarkable for thinneſs and length 'of body, ſhortneſs of legs, and length of tail. 'The length of the body, from the muzzle to the 'anus, is five feet four inches; and that of the 'tail is two feet ſix inches. The fore-legs are 'one foot long, and the hind legs one foot three 'inches. The height of the body before is one 'foot nine inches, and one foot ten inches behind. 'The circumference of the thickeſt part of the 'body is two feet three inches *.'

Mr. Edwards, who, for ſkill in the art of drawing, and knowledge of natural hiſtory, merits the applauſes of all lovers of ſcience, ſent me ſome engravings, which correſponded with the drawing communicated by Mr. Colinſon.

The BLACK COUGUAR.

M. de la BORDE, King's phyſician at Cayenne, informs me, that in the Continent there are three ſpecies of rapacious animals; that the firſt is the jaguar, which is called the *tiger;* that

* Mr. Colinſon's letter to M. de Buffon, April 30, 1763.

the ſecond is the couguar, called the *red tiger*, on account of the uniform redneſs of his hair; that the jaguar is of the ſize of a large bull-dog, and weighs about 200 pounds; that the couguar is ſmaller, leſs dangerous, and not ſo frequent in the neighbourhood of Cayenne as the jaguar; and that both theſe animals take ſix years in acquiring their full growth. He adds, that there is a third ſpecies in theſe countries, called the *black tiger*, of which we have given a figure under the appellation of the *black couguar*.

'The head,' ſays M. de la Borde, 'is pretty 'ſimilar to that of the common couguar; but the 'animal has long black hair, and likewiſe a long 'tail, and ſtrong whiſkers. He weighs not 'above forty pounds. The female brings forth 'her young in the hollows of old trees *.'

* To this deſcription we ſhall add that given by Mr. Pennant, which is more accurate, though ſomewhat different from that communicated by M. de la Borde to M. de Buffon.

'*Black tiger*, or *cat*, with the head black, ſides, fore-part of 'the legs, and the tail, covered with ſhort and very gloſſy 'hairs, of a duſky colour, ſometimes ſpotted with black, but 'generally plain: Upper lips white: At the corner of the 'mouth a black ſpot: Long hairs above each eye, and long 'whiſkers on the upper lip: Lower lip, throat, belly, and the 'inſide of the legs, whitiſh, or very pale aſh-colour: Paws 'white: Ears pointed: Grows to the ſize of a heifer of a 'year old: Has vaſt ſtrength in its limbs.—Inhabits Braſil 'and Guiana: Is a cruel and fierce beaſt; much dreaded by 'the Indians; but happily is a ſcarce ſpecies;' *Pennant's Synopſ. of Quad. p.* 180.

This deſcription was taken from two black couguars which were ſhown in London ſome years ago.

This

This black couguar may be the ſame animal which Piſo and Marcgrave call the *jaguarette*, or *jaguar with black hair*, and which no other traveller has mentioned under the name of *jaguarette*. I only find, in a note of M. Sonini de Manoncour, that the jaguarette is called the *black tiger* at Cayenne, and that he is of a different ſpecies from the jaguar, being ſmaller, and thinner in the body. This animal is fierce and rapacious; but he is very rare in the neighbourhood of Cayenne.

'The jaguars and couguars,' continues M. de la Borde, 'are very common in all the lands 'which border on the river of the Amazons, as 'far as Saint Martha. Their ſkin is ſo tender as 'to be eaſily pierced by the ſimple arrows of 'the Indians. Beſides, all theſe animals are not 'abſolutely fond of carnage; for a ſingle prey 'always ſatisfies them. They go generally 'alone; but, when the females are in ſeaſon, 'ſometimes two or three of them are ſeen 'together.

'When preſſed with hunger, they attack cows 'and oxen. They ſpring upon the back of an 'ox, fix the claws of their left foot upon his 'neck, and, when he falls down, they tear him 'in pieces; and, after opening his breaſt and 'belly to glut themſelves with blood, they trail 'portions of his fleſh into the wood. They 'then cover the remainder of the carcaſe with 'branches of trees, and remove not to any great

'diſtance.

'distance. But, whenever the fleſh begins to 'corrupt, they eat no more of it. Sometimes 'they conceal themſelves in trees, and dart 'down upon paſſing animals. They likewiſe 'follow the flocks of wild hogs, and ſeize the 'ſtragglers. But, if ever they allow themſelves 'to be ſurrounded by theſe animals, they have 'no ſafety except in a precipitate retreat.

'But, neither the jaguars nor couguars are 'abſolutely ferocious: They never attack men, 'unleſs when they feel themſelves wounded. 'But they deſpiſe the aſſaults of dogs, which they 'often ſeize in the neighbourhood of houſes. 'When purſued by ſuch a number of dogs as ob-'liges them to fly, they take refuge in the trees. 'Theſe animals often roam about the margins of 'the ſea, and eat the eggs depoſited there by the 'turtles. They likewiſe eat *caïmans*, or alliga-'tors, lizards, fiſhes, and ſometimes the buds and 'tender leaves of the Indian fig. They are ex-'cellent ſwimmers, and traverſe the largeſt rivers. 'In taking the *caïman*, they lie down on their 'belly at the edge of the river, ſtrike the water 'to make a noiſe, and attract the attention of 'the *caïman*, who ſoon approaches, and raiſes 'his head above the water, upon which the 'jaguar inſtantly makes his deadly ſpring, and, 'after killing the animal, drags him off to a diſ-'tance, in order to devour him at leiſure.

'The Indians ſay, that the jaguars decoy the 'agouti by counterfeiting his cry. It is likewiſe

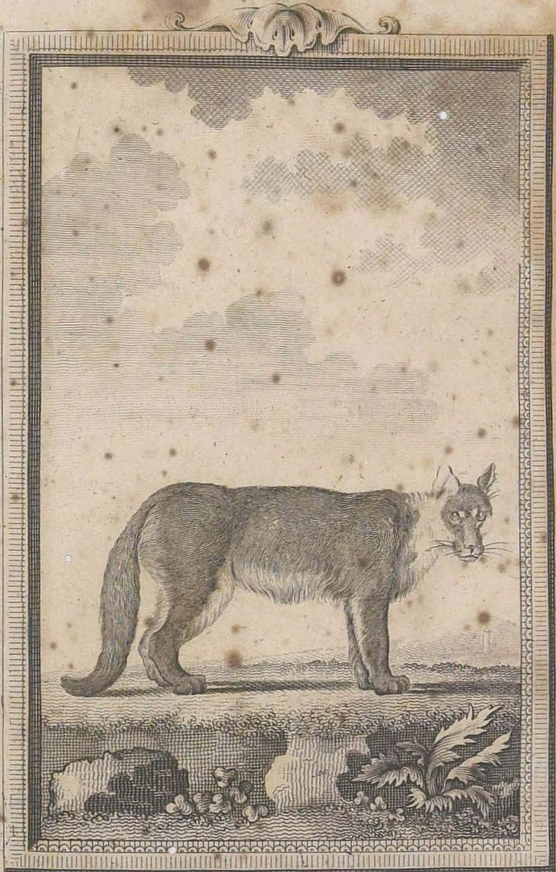
'ſaid,

Plate CXX

A Bell Sculp.

COUGUAR.

Plate CXXI.



A. Bell Sculp.t

FEMALE COUGUAR.

Plate CXXII.

A. Bell Sculpt.

COUGUAR of PENSYLVANIA.

Plate CXXIII.

A. Bell Sculpt.

BLACK COUGUAR.

'ſaid, that they attract the caïman by a cry 'ſimilar to that of a young dog, or like that of 'a man who coughs, which is ſtill more diffi-'cult to believe.

'When theſe animals are in ſeaſon, they ſet 'up dreadful roarings, which are heard at great 'diſtances. They commonly bring forth but one 'at a time, which they depoſit in the large trunks 'of corrupted trees. At Cayenne, they eat the 'fleſh of theſe animals, which, when young, is 'as white as that of a rabbit *.'

The couguar, when brought into captivity, is almoſt equally gentle as the other domeſtic animals.

'I have ſeen,' ſays the author of *Les Recherches ſur les Americains*, 'a living couguar at the 'houſe of Ducos, a keeper of wild beaſts; he was 'as peaceable as a dog, and of greater ſize than 'the largeſt kind of dogs. He ſtands high on his 'legs, which renders him nimble and alert. His 'canine teeth are very large, and conical. He 'was neither diſarmed nor muzzled; and he was 'conducted by a leaſh.—He allowed himſelf to 'be careſſed with the hand. I have ſeen boys 'mount him, and ride aſtraddle on his back. 'The name of the *paltroon tiger* has been given 'to him with propriety †.'

* Extract from obſervations ſent from M. de la Borde to M. de Buffon in the year 1774.

† Defence des Recherches ſur les Americains, p. 86.

THE LYNX*.

THE gentlemen of the Academy of Sciences have given a very good deſcription of the lynx, and have diſcuſſed, with much critical

* The lynx has a ſhort tail, black at the end, pale yellow eyes, and long full hair under the chin. The hair on the body is long and ſoft, of a cinereous colour, tinged with red, and marked with duſky ſpots, more or leſs diſtinct in different ſubjects; in ſome they are hardly viſible. The belly is whitiſh. The ears are erect, and tufted with long black hairs, which is the character of the different kinds of *lynxes*. The legs and feet are very thick and ſtrong. The length of the ſkin of a Ruſſian lynx, from noſe to tail, was four feet ſix inches, and that of the tail only ſix inches. They ſometimes vary in their colour. The *Irbys* from Lake Balckaſh, or the *Kattle* of the Swedes, is whitiſh, ſpotted with black, and larger than the common kind. This variety is called by the Germans *Wolf-lucks*, and *Kalb-lucks*, on account of its ſize; *Pennant's Synopſ. of Quad. p.* 186.

Λυγξ; *Æliani. lib.* xiv. *c.* 6. *Oppian. Cyneg.* iii. 84. *Chaus, lupus cervarius,* Plinii; *Raphius* vel *rufius,* apud Gallos, Plinio teſte. In Italian, *Lupo cerveiro, Lupo gatto*; in Spaniſh, *Lynce*; in German, *Luchs*; in Poliſh, *Rys, Oſtrowidz*; in Swediſh, *Warglo*.

Lupus cervarius, lynx, chaus, raphius; *Geſner. Hiſt. Quad. p.* 678.

Lynx; *Aldrov. Quad. Dig. Vivip. p.* 90. 92. *Ray, Synopſ. Quad. p.* 166. *Johnſton, de Quad. p.* 83. *Klein. Quad. p.* 77.

Lynx felis, cauda abbreviata, apice atra; auriculis apice barbatis; *Lynn. Syſt. Nat. p.* 62.

Loup-cervier; *Mem. pour ſervir a l'Hiſt. des Animaux, part.* i. *p.* 127.

Felis auricularum apicibus pilis longiſſimis præditis, cauda brevi. Lynx, le Loup-cervier; *Briſſ. Regn. Anim. p.* 275.

 acuteneſs,

acutenefs, the facts and appellations relating to this animal, which occur in the writings of the ancients *. They have fhown, that the lynx of Ælian is the fame animal which they have defcribed and diffected, and they cenfure, with propriety, thofe who have miftaken it for the *thos* of Ariftotle. This difcuffion is intermixed with remarks and reflections which are pertinent and interefting. After clearing their ground with fo much addrefs, we wifh they had retained the true name *lynx*, inftead of fubftituting that of *lupus cervarius*. They appear likewife, after making a proper diftinction, with Oppian, of two different fpecies or races of the lynx, the one large, which hunts and attacks the fallow deer and the ftag, and the other fmaller, which hunts the hare only, to have blended the two together, namely, the fpotted lynx, which is commonly found in the northern countries, and the Levant or Barbary lynx, whofe hair is of a uniform colour. We have feen both thefe animals alive. They refemble each other in many refpects. They have both two long black pencils of hair on the tips of their ears. This character, under which Ælian firft pointed out the lynx, is peculiar to thefe two animals, and probably led the gentlemen of the Academy to regard them as conftituting but one fpecies. But, independent of the difference of colour and fpots

* Mem. pour fervir à l'Hiftoire des Animaux, part. i. p. 127.

of

of the hair, the following hiſtory and deſcription will render it extremely probable that they are diſtinct ſpecies.

M. Klein ſays *, that the moſt beautiful lynx is a native of Africa and Aſia, and particularly of Perſia; that he ſaw one at Dreſden that had been brought from Africa, which was finely ſpotted, and ſtood high on its limbs; that thoſe of Europe, eſpecially of Pruſſia and the northern regions, are leſs handſome; that they have little or no white, but are rather red, with blotched and ill-defined ſpots, &c. I chooſe not to deny abſolutely what M. Klein has here advanced. I have never ſeen it mentioned, however, by any other author, that the lynx is a native of the warm countries of Aſia and Africa. Kolbe † is the only writer who affirms, that the lynx is common at the Cape of Good Hope, and perfectly reſembles that of Brandenburgh, and the north of Europe. But I have diſcovered ſo many errors in the works of this author, that I give no credit to his teſtimony, unleſs when it coincides with that of others. Now, all travellers agree in having ſeen the ſpotted lynx in the north of Germany, in Lithuania, Muſcovy, Siberia, Canada, and other northern regions of both Continents. But no author, whoſe writings I have peruſed, aſſerts that the lynx is to be met with in the warm regions of Africa or Aſia. The

* Klein de Quad. p. 77.

† Mem. de Kolbe, tom. iii. p. 63

lynx

lynx of the Levant, of Barbary, of Arabia, and other hot climates, is, as formerly remarked, of one uniform colour, without any ſpots: He is not, therefore, the lynx of M. Klein, which was finely ſpotted, nor that of Kolbe, which perfectly reſembled that of Brandenburg. It would be a difficult taſk to reconcile the evidence of theſe authors with what we learn from other ſources. The lynx is unqueſtionably more common in cold than in temperate climates, and he is, at leaſt, very rare in warm countries. He was, indeed, known to the Greeks * and Romans. But, from this circumſtance, it is not to be inferred, that he was brought from Africa, or the ſouthern provinces of Aſia. Pliny, on the contrary, ſays, that the firſt of theſe animals which appeared in Rome, were ſent from Gaul in the days of Pompey. At preſent there are none in France, unleſs perhaps in the Alps or Pyrenees. Under the name of *Gaul*, however, the Romans comprehended a great part of the North; and, beſides, France is now much warmer than it was in the time of the Romans. The fineſt ſkins of the lynx come from Siberia †, under the name of *Loup-cervier*, and from Canada,

* The Greeks, who, in their fictions, always preſerved ſome appearance of truth, eſpecially with regard to times and places, ſay, that it was a King of *Scythia* who was changed into the lynx; which ſeems to indicate that the lynx was a Scythian animal.

† In Ruſſia, the lynxes are very common; their ſkins are beautiful, but not ſo valuable as thoſe of Siberia; *Nouv. Mem. ſur la Grande Ruſſie, tom.* ii. *p.* 73.

nada *, under that of *chat-cervier*, because these animals, like all others, are smaller in the New than in the Old Continent; in the former, they are compared to the wolf, in the latter to the cat †.

The following circumstances might deceive M. Klein, and even men of greater ability: 1. The ancients say, that India furnished lynxes to the God Bacchus ‡; 2. Pliny has placed the lynx in Æthiopia, and says §, that the hide and claws

* The lynx of North America is a kind of cat, but much larger. He climbs trees, and lives on the animals which he seizes. His hair is long, of a grayish white colour, and makes an excellent fur. His flesh his white, and makes good eating; *Descript. des Côtes l'Amerique Septent. tom.* ii. *p.* 441.

† In the woods of Canada, there are a great many wolves, or rather *chat-cerviers*; for they have nothing in common with the wolf, but a kind of howling; in every other respect, says M. Sarrasin, they are *ex genere felino*. They are excellent hunters, and live entirely on game, which they pursue to the tops of the highest trees. Their flesh is white, and good for eating. Their skin and hair are well known in France as a valuable branch of commerce; *Charlevoix, tom.* iii. *p.* 333.

‡ Victa racemifero lyncas dedit India Baccho; *Ovid. Metamorph.*

§ Plin. Hist. Nat. lib. viii. c. 21. et lib. xxviii. c. 8.—It is to be observed, that Pliny here speaks of the lynx, and not of the *lupus-cervarius*; that all the qualities and virtues of the hair, the claws, the urine, &c. relate to the lynx only, which he mentions as an uncommon Æthiopian monster, and not to the *lupus-cervarius*, which he positively asserts was sent from Gaul to the public spectacles of Rome. The only thing which might create a suspicion that the *chaus* or *lupus-cervarius* of Pliny was not our lynx, is his affirming, that it had the figure of the wolf, and the spots of the panther. But this doubt will vanish, when it is considered, that, of all

claws were prepared at *Carpathos*, now *Scarpantho*, or *Zerpanto*, an iſland in the Mediterranean between Rhodes and Candia; 3. Geſner has made a particular article of the Aſiatic or African lynx, which contains the following extract of a letter from Baron de Balicze *. 'You have not mentioned,' ſays the Baron to Geſner, 'in your 'hiſtory of animals, the Indian or African lynx. 'As Pliny has ſpoken of it, the authority of ſo 'great a man induced me to ſend you a drawing of this animal, that you may have an opportunity of deſcribing it. This drawing was 'made at Conſtantinople. The animal is very 'different from the German lynx, being larger, 'having rougher and ſhorter hair,' &c. Geſner, without making any reflections on this letter, contents himſelf with relating the ſubſtance of it, and informing us, in a parentheſis, that the drawing never arrived.

To prevent ſimilar miſtakes, let us obſerve, 1. That the poets and painters have yoked the chariot of Bacchus with tigers, panthers, or lynxes, according to their own fancy, or, rather, becauſe all ferocious animals, with ſpotted ſkins, were equally conſecrated to this God. 2. That it is the word *lynx* which creates all this ambiguity; for it is evident, by comparing different

all the carnivorous animals in the northern regions, the lynx alone has his ſkin ſpotted like that of the panther.

* Geſner, Hiſt. Quad. p. 683.

paſſages of Pliny with each other *, that the Æthiopian animal he calls *lynx*, is by no means the ſame with the *chaus* or *lupus-cervarius*, which is a native of the northern regions; and that, by a ſimilar miſapplication of the name, the Baron de Balicze has been deceived, though he regards the Indian lynx as a different animal from the German *luchs*, or our lynx. This African or Indian lynx, which he ſays was larger and more beautifully ſpotted than our lynx, was perhaps a kind of panther. Whatever may be in this laſt conjecture, it is plain, that the lynx, of which we are here treating, exiſts not in warm climates, but is confined to the northern countries of the Old and New Continents. Olaus † ſays, that this animal is common in the foreſts of the northern parts of Europe. Olearius ‡ makes the ſame remark, when treating of Muſcovy. Ro-

* Pompeii Magni primum ludi oſtenderunt Chaum, quem Galli Rhaphium vocabant, effigie lupi, pardorum maculis; *Plinii, lib.* viii. *c.* 19.—Sunt in eo genere (ſcilicet luporum), qui cervarii vocantur, qualem é Gallia in Pompeii Magni harena ſpectatum diximus; *Plin. lib.* viii. *c.* 22.—Lyncas vulgo frequentes et ſphingas, fuſca pilo, mammis in pectore geminis, Æthiopia generat, multaque alia monſtra ſimilia; *Plin. lib.* viii. *c.* 21.—From theſe three paſſages, it is apparent, that the *chaus* and the *lupus-cervarius* are the ſame animal, and that the lynx is a different creature. Pliny ſeems to have been deceived by the name, when he tells us that the figure of the lynx reſembled that of the wolf. The lynx, like the wolf, is an animal of prey nearly of the ſame ſize, and howls ſomething like the wolf; but, in every other article, theſe animals are totally different.

† Hiſt. de Gent. Septent. ab Olao Magno. lib. xviii. p. 139.

‡ Relat. d'Adam Olearius, tom. i. p. 121.

ſinus

finus Lentilius tells us, that the lynx is common in Courland and Lithuania, and that thofe of Caffubia, a province of Pomeranio, are fmaller and not fo much fpotted as thofe of Poland and Lithuania *. Laftly, to thefe teftimonies, Paulus Jovius adds, that the fineft fkins of the lynx come from Siberia †, and that they conftitute a great article of trade at Uftivaga, a town fix hundred miles diftant from Mofcow.

This animal, which, as we have feen, prefers cold to temperate countries, is one of thofe that might pafs from the one Continent to the other by the lands to the North; and, accordingly, he is found in North America. Travellers have defcribed him in a manner not to be mifunderftood ‡: Befides, his fkin is an article of commerce between America and Europe: The lynxes of Canada, as formerly remarked, are only fmaller and whiter than thofe of Europe; and it is this difference of fize that has procured to them the name of *cati-cervarii*, and has induced

* Auctuarium Hift. Nat. Poloniæ, Gabriele Rzaczynfki.

† Vid. Aldrov. de Quad. Digit. p. 96.

‡ Among the Gafpefians, there are three kinds of wolves. The *lupus-cervarius* has filver coloured hair, and two pencils of black hair on his head (he means the ears). His flefh is pretty good, though its fmell be too rank. This animal is more terrible to behold than cruel; and his fkin makes an excellent fur; *Nouv. Relat. de la Gafpefie, par le Père Chretien Leclercq. p.* 488.—In the country of the Hurons, the *lupus-cervarius* is more frequent than the common wolves, which are there very fcarce; *Voyage de Sagaar Theodat, p.* [illegible].—In America, there are rapacious animals, as leopards, and *lupi-cervarii*, but no lions; *Singularités de la France Antartique, par Thevet, p.* [illegible].

 the

the nomenclators to regard them as a distinct species *. Without pronouncing decisively concerning this matter, the Canadian and Russian lynxes appear to be the same species; 1. Because the difference of size is not very considerable †, being nearly proportioned to that which takes place in all the quadrupeds which are common to both Continents. The wolves, the foxes, &c. of America, being less than those of Europe, the same phænomenon should be exhibited in the lynx. 2. Because these animals, even in the north of Europe, vary in size ‡; and two kinds, a smaller and a larger, have been mentioned by authors. 3. Because they equally love cold climates, and, being of the same dispositions, the

* M. Linnæus, who lives at Upsal, and ought to know this animal, since it is a native of Sweden and the adjacent countries, first distinguished the *lupus-cervarius* from the *catus-cervarius*. He denominates the first, *felis caudâ truncatâ, corpore rufescente maculato*; *Syst. Nat. edit.* 4. *p.* 64. *et edit.* 6. *p.* 4.; and the second, *felis caudâ truncatâ, corpore albo maculato*; *Syst. Nat. ibid.* In Swedish, he calls the first *Warglo*, and the second *Kattlo*; *Faun. Suec. p.* 2. But, in his last edition, he no longer distinguishes these animals, and mentions only one species under the following short description: *Felis cauda abbreviata apice atra, auriculis apice barbatis.* Hence it appears, that this author, who at first separated the *lupus-cervarius* from the *catus-cervarius*, was persuaded, as I am, that these two animals constitute but one species.

† Felis alba maculis nigris variegata, caudâ brevi. . . Catus cervarius, *le chat-cervier*—Felis auricularum apicibus pilis longissimis præditis, caudâ brevi. . . . Lynx, le loup-cervier; *Brisson, Regn. Anim. p.* 274. et 275.

‡ Lynces ambæ (magnæ et parvæ) corporis figurâ similes sunt, et similiter utrisque oculi suaviter fulgent, facies utrisque alacris perlucet, parvum utrisque caput, &c., *Oppianus*.

same

ſame figure, and differing only in ſize and ſome ſhades of colour, theſe characters ſeem ſufficient to authoriſe us to pronounce that they belong to the ſame ſpecies.

The lynx, of which the ancients ſaid that his ſight penetrated the moſt opaque bodies, and whoſe urine became a precious ſtone, called *Lapis lyncurius*, is an animal equally fabulous as the qualities they have aſcribed to him. This imaginary lynx has no other relation to the true lynx than the name. We muſt not, therefore, in imitation of moſt naturaliſts, attribute to the former, which is a real being, the qualities of this creature of imagination, the exiſtence of which even Pliny himſelf ſeems not to believe; for he ſpeaks of it as an extraordinary animal, and ranks it along with the ſphynx, the pegaſus, the unicorn, and other prodigies or monſters brought forth in Æthiopia, a country of which the ancients had no knowledge.

Our lynx, though his ſight cannot penetrate ſtone-walls, has brilliant eyes, a mild aſpect, and an agreeable and ſprightly air. His urine is not converted into precious ſtones; but he covers it with earth like the cats, to whom he has a great reſemblance, and whoſe manners and love of cleanlineſs are the ſame. He has nothing in common with the wolf, but a kind of howling, which, being heard at a great diſtance, often deceives the hunters, and makes them imagine they

 are

are purſuing a wolf. This alone is, perhaps, ſufficient to account for the name of *wolf*, which has been given to him, and to which, to diſtinguiſh him from the real wolf, the hunters have added the epithet *cervarius*, becauſe he attacks the ſtag; or rather becauſe his ſkin is variegated with ſpots like that of the young ſtag. The lynx is ſmaller, and ſtands lower on his legs than the wolf*. He is generally about the ſize of a fox. He differs from the panther and ounce by the following characters: His hair is longer, and his ſpots leſs lively, and not ſo well defined. His ears are much longer, and terminate in a pencil of black hairs. His tail is much ſhorter, and black at the extremity. The circle of his eyes is white, and his aſpect is ſofter and leſs ferocious. The ſkin of the male is more ſpotted than that of the female. He does not run out, like the wolf, but walks and ſprings like the cat. He lives by hunting, and purſues his prey to the tops of the higheſt trees. The wild cats, the pine weaſels, the ermines, and the ſquirrels, are unable to eſcape him. He likewiſe ſeizes birds; and watches the approach of ſtags, fallow-deer, hares, &c. darts down upon them, ſeizes them by the throat, ſucks their blood, and opens their ſkull to devour their brain; after which, he often abandons them, and goes in queſt of a freſh game. He ſeldom returns to his prey; which

* Lynces noſtræ lupis minores ſunt, tergo maculoſæ; *Stumphius*.

is

is the reaſon why the lynx has been ſaid to have a very bad memory. The colour of his hair changes with the climate and the ſeaſon. The winter furs are more beautiful and richer than thoſe of ſummer. His fleſh, like that of all carnivorous animals, is not good*.

SUPPLEMENT.

WE here give the figure of a Canadian lynx from an excellent preparation in the royal cabinet. It is only two feet three inches long from the tip of the noſe to the origin of the tail, and from twelve to thirteen inches high. The body is covered with long grayiſh hair, mixed with white, and ſtriped with yellow. The ſpots are more or leſs black. The head is grayiſh, blended with white and bright yellow hairs, and ſtriped, as it were, with black in ſome parts. The tip of the noſe, as well as the margin of the under jaw, is black. The whiſkers are white, and about three inches long. The ears are two inches three lines high, garniſhed in the inſide with large white hairs, and with yellowiſh hairs on the edges. The outer ſide of the ear is covered with mouſe-coloured hair, and the external margins are black. At the extremity of each ear, there is a large thin pencil of black hairs,

* Rzaczynſky, Auct. Hiſt. Nat. Pol. p. 314.

ſeven

ſeven lines high. The tail, which is thick, ſhort, and well furniſhed with hair, is only three inches nine lines in length; from the extremity to the middle, it is black, and afterwards of a reddiſh white colour. The under part of the belly, the hind-legs, the inſide of the fore-legs, and the feet, are of a dirty white. The claws are white, and about ſix lines long. This lynx has a great reſemblance, both in the ſpots and nature of the hair, to that whoſe figure we have given; but it differs in the length of the tail and the pencils on the ears. The Canadian lynx, therefore, may be regarded as a variety very different from the lynx of the Old Continent. It may even be ſaid to make a near approach to the caracal, by the pencils on its ears; but it differs from the caracal ſtill more than from the lynx, by the length of the tail and the colour of the hair. Beſides, the caracal is only found in warm countries; but the lynx prefers cold climates. The pencil of hair upon the tips of the ears, which is regarded as a diſtinctive character, is only accidental, and appears in animals of this ſpecies, and even in the domeſtic and wild cats. Of this we have given an example in the ſupplement to the article *cat*. Hence we perſiſt in believing that the American lynx is only a variety of the European ſpecies.

The Norwegian lynx, deſcribed by Pontoppidan, is white, or of a bright grey colour, interſperſed with deep ſpots. Its claws, like thoſe of

other lynxes, resemble the claws of cats. He elevates his back, and springs upon his prey with equal quickness and address. When attacked by a dog, he lies down upon his back, and repels the enemy by repeated strokes of his claws. This author adds, that there are, in Norway, four species; that some of them approach the figure of the wolf, others that of the fox, others that of the cat, and, lastly, that there are others whose head resembles that of a colt. This last fact, which I believe to be false, creates the most violent suspicion with regard to all the rest. The author adds some articles which are more probable.

'The lynx,' says he, 'does not go about the 'country, but conceals himself in woods and 'caverns. He makes his retreat deep and wind-'ing, from which he can be expelled by fire 'and smoke only. His sight is piercing, and he 'spies his prey at a very great distance. He of-'ten eats no more of a sheep or a goat than the 'brain, the liver, and the intestines; and he 'digs under the doors, in order to gain admis-'sion into the sheep-folds *.'

The species of the lynx is not only spread over Europe, but all the northern provinces of Asia. In Tartary, they are called *Chulon* or *Chelason* †. Their skins are highly valued, and, though very common, sell equally dear in

* Pontoppidan's Nat. Hist. of Norway.

† Hist. Gen. des Voyages, tom. vi. p. 602.

Norway,

Norway, Ruſſia, and as far as China, where they are much uſed for muffs and other furs.

That the pencils of hair on the tips of the ears form not a diſtinctive character, appears from this fact, that there exiſts, in the diſtrict of Alger, called *Conſtantine*, a ſpecies of caracal, without theſe pencils, and which reſembles the lynx, except that its tail is longer. The colour of its hair is reddiſh, with longitudinal black ſtripes from the neck to the tail, detached ſpots on the flanks diſpoſed in the ſame direction, a black half-circle on the top of the fore-legs, and a band of rough hair on the four legs, extending from the extremity of the foot to above the heel; and this hair inclines upward, inſtead of downward, like the hair of every other part of the body.

Plate CXXIV.

A Bell sculp.

LYNX.

Plate CXXV.

CANADIAN LYNX.

THE CARACAL*.

THOUGH the caracal reſembles the lynx in ſize, figure, aſpect, and the pencil of black hair on the tips of the ears, we are of opinion, from the diſparities between theſe two animals, that they belong to different ſpecies. The caracal is not ſpotted like the lynx; his hair is rougher and ſhorter; his tail is longer, and of a uniform colour; his muzzle is alſo more lengthened; his aſpect is leſs mild, and his diſpoſition more ferocious. The lynx inhabits cold or temperate climates only; but the caracal is never found except in warm countries. It

* The Perſian cat, with a lengthened face, and ſmall head, has long ſlender ears, terminated with a long tuft of black hairs. The inſide and bottom of the ears, and noſe, are white. The eyes are ſmall; the upper part of the body is of a pale reddiſh brown colour, and the tail is rather darker. The belly and breaſt are whitiſh; the limbs are ſtrong, and pretty long. The tail is about half the length of the body. *Pennant's Synopſ. of Quad. p.* 189.

In Turkiſh, *Karrah-kulak*; in Arabic, *Gat el Challah*; in Perſian, *Siyah-guſh*. In all theſe three languages, the denominations ſignify *the cat with black ears*.

Siyah-guſh; *Charleton, Exercitationes, p.* 21. *Raii Synopſ. Quad. p.* 168.

Siyah-guſh. Auricula atra. *Scheich Saadi* in libro *Guliſtan* ſeu *roſario*, ſexcentis circiter ab hinc annis conſcripto, quem Perſice et Latine edidit *Georg. Gentius*. Ubi vide apologum *Leonis* et *auriculæ atræ*, p. 81.

The lion's provider, or guide, according to ſeveral travellers.

is

is from theſe differences of diſpoſition and climate that we have referred them to different ſpecies, as well as from the inſpection and comparison of the two animals, both of which we have examined and drawn from the life.

This animal is common in Barbary, in Arabia, and in all the countries inhabited by the lion, the panther, and the ounce. Like them, he lives on prey; but, being ſmaller and weaker, it is with difficulty he procures ſubſiſtence; for he is generally obliged to be contented with what they leave. He keeps at a diſtance from the panther, becauſe that animal exerciſes its cruelties after being fully gorged with prey. But he follows the lion, which, after a full repaſt, never injures any creature. The caracal feaſts upon the offals of the lion's table, and ſometimes follows, or goes before him, at no great diſtance, having nothing to apprehend from his rage; becauſe he is unable, like the panther, to purſue the caracal to the tops of the talleſt trees. For all theſe reaſons the caracal has been called the lion's guide or provider *. The latter, whoſe ſmell is not acute, employs the former to ſcent animals

* The karacoulacs are animals ſomewhat larger than cats, and of the ſame make. They have black ears, nearly half a foot long, and from this circumſtance they derive their name, which ſignifies *black ear*. According to the opinion of the natives, they ſerve as pioneers to the lion; for they go a little before, explore thoſe places where prey is to be expected, and are rewarded with a ſhare. When this animal gives the alarm

animals at a diſtance, and rewards him with a part of the ſpoil *.

The caracal is about the ſize of a fox, but much ſtronger and more ferocious. He has been known to attack and inſtantly tear to pieces a middle-ſized dog, which defended itſelf as long as it was able. He is extremely difficult to tame. However, when taken young, and reared with care, he may be trained to hunting, an

alarm to the lion, his cry reſembles that of one perſon to another, though the voice is conſiderably ſharper; *Voyage de Thevenot, tom.* ii. *p.* 114.

* I ſaw an animal in an iron cage, which the Arabs called *the lion's guide.* It has ſo ſtrong a reſemblance to a cat, that it has been called *the cat of Syria*; and I ſaw another of them at Florence which went under the ſame name. He is ſo fierce, that, if any perſon attempts to take meat from him, he becomes perfectly furious, and, if not appeaſed, ſprings inſtantly upon the ſpoiler. There are ſmall tufts of hair on the ſummits of his ears; and he is called the *lion's guide,* becauſe the latter is ſaid to be deficient in ſcent. But, when attended by the caracal, which has a very acute noſe, he follows his prey, and rewards his conductor with a ſhare; *Voyage d'Orient du Père Philippe, Carme-déchauſſé, liv.* ii. *p.* 76.—The *gat el challah, ſiyah guſh,* or *karrah-kulak,* i. e. *the black cat,* or *black eared cat,* as the Arabic, Perſian, and Turkiſh names ſignify, is of the bigneſs and ſhape of a cat of the largeſt ſize. The body is of a reddiſh brown; the belly of a light colour, and ſometimes ſpotted; the chops are black, the ears of a deep gray, with the tips of them diſtinguiſhed by ſmall tufts of black ſtiff hair, as in the lynx. The figure given of this animal by Charleton is not ſo full in the chops as the Barbary Siyah-guſh; *Shaw's Travels, p.* 175. The figure given by Charleton does not repreſent the hair properly; and the head, which is bald, is deprived of its roundneſs. However, the Siyah-guſh of Charleton, and that of Barbary, mentioned by Dr. Shaw, belong to the ſame ſpecies with our caracal.

employment

employment of which he is naturally fond, and in which he is very ſucceſsful, eſpecially if he is never let looſe upon any animal that is not his inferior in ſtrength; for he loſes courage, as ſoon as he perceives real danger. In India, he is employed for catching hares, rabbits, and even large birds, whom he ſurpriſes and ſeizes with ſingular addreſs.

SUPPLEMENT.

I Mentioned under the article *caracal*, that the word *gat el-challah* ſignified *the black eared cat*. Mr. Bruce aſſures me that it means *the cat of the deſert*. In that part of Nubia formerly called the *iſle of Meroe*, he ſaw a caracal which differed in ſome reſpects from that of Barbary, of which we have given a figure. The face of the Nubian caracal is rounder, the ears black on the outſide, but interſperſed with ſilver-coloured hairs. He has the mule-croſs on his withers, like moſt of the Barbary caracals. On the breaſt, belly, and inſide of the thighs, there are ſmall bright yellow ſpots, and not blackiſh brown, as in the Barbary caracal. Theſe are only ſlight varieties, the number of which might be ſtill augmented; for we find in Barbary, or rather in Lybia, near the ancient Capſa, a caracal with white, inſtead of black ears. The pencils of theſe white-eared caracals are thin, ſhort, and black,

Plate CXXVI.

CARACAL.

Plate CXXVII.

A. Bell Sculp.

CARACAL of BENGAL.

black. They have a white tail, the extremity of which is ſurrounded with four black rings, and four black patches on the hind part of each leg, like the Nubian caracal. They are alſo ſmaller than the other caracals, not exceeding the ſize of a domeſtic cat. The ears are white within, and covered on the outſide with buſhy hair, of a lively red colour *. If this difference in ſize were conſtant, it might be alledged, that there are two ſpecies of caracals in Barbary, the one large with black ears and long pencils; the other ſmaller, with white ears and very ſhort pencils. It appears likewiſe, that theſe animals, which differ ſo greatly in their ears, are equally diverſified in the form and length of the tail, as well as in the height of the legs; for Mr. Edwards has ſent us the figure of a caracal from Bengal, whoſe tail and limbs are vaſtly longer than thoſe of the common kind.

* Note communicated by Mr. Bruce to M. de Buffon.

THE HYÆNA*.

THOUGH Ariſtotle † has left us two characters by which alone this animal is eaſily diſtinguiſhed from all others; yet travellers and naturaliſts have confounded the hyæna with no leſs than four different ſpecies, namely, the jackal, the glutton, the civet, and the baboon. They are carnivorous and ferocious, like the hyæna, and each of them has ſome reſemblance to him, which might give riſe to the miſtake. The

* The hyæna has long, ſharp pointed, naked ears, an upright mane, high ſhoulders, and the fore legs higher than the hind legs. The hair on the body is coarſe, rough, pretty long, of an aſh-colour, marked with long black ſtripes from the back downwards, and others croſs the legs. The tail is very full of hair, ſometimes plain, and ſometimes barred with black. His ſize is that of a large dog; but he is very ſtrong made; *Pennant's Synopſ. of Quad. p.* 161.

In Arabic, *Zabo*; in the language of Barbary, *Dubbah*; in Perſic, *Kaftaar* or *Caſtar*.

Hyæna; *Ariſt. Hiſt. Anim. lib.* vi. *c.* 32. *Plinii, lib.* viii. *c.* 30.

Taxus porcinus, ſeu hyæna veterum; *Kaempfer, Amœn. p.* 411.

Canis hyæna, cauda recta annulata, pilis cervicis erectis, auriculis nudis, palmis tetradactylis; *Linn. Syſt. Nat. p.* 58. The annulated tail, which is alſo mentioned by Kaempfer, is neither very ſenſible, nor conſtant. The hyæna which I examined had every other character aſcribed to it by Linnæus. The tail was not annulated, but only mixed with brown upon a gray ground, which formed a kind of undulations rather than rings.

Lupus marinus; *Belon. Aquat. p.* 33. *Geſner. Quad.*

† Ariſtot. Hiſt. Anim. lib. vi. c. 32. lib. viii. c. 5.

jackal

jackal inhabits the ſame countries, and, like the hyæna, has nearly the form of a wolf, feeds upon dead carcaſſes, and digs them out of the ſepulchres. The glutton is equally voracious, has the ſame appetite for putrified fleſh, the ſame inſtinct of digging the dead out of their graves; and, though he lives in a different climate, and his figure is very different from that of the hyæna, this conformity of natural diſpoſitions was ſufficient to make authors confound them together. The civet is found in the ſame countries, and, like the hyæna, has long hair along the back, and a particular fiſſure or orifice. Theſe ſingular characters, which belong to no other animals, miſled Belon into the notion that the civet was the hyæna of the ancients. The baboon has ſtill leſs reſemblance to the hyæna than the other three; for it has hands and feet like thoſe of a man or a monkey. Naturaliſts, therefore, could be deceived by the name only: In Barbary, the hyæna, according to Dr. Shaw, is called *dubbah*, and the baboon, according to Marmol and Leo Africanus, is called *dabuh*; and, as the baboon is found in the ſame climates, digs the earth, and is nearly of the ſame form with the hyæna, theſe affinities firſt deceived travellers, and naturaliſts copied the blunder, without ſufficient examination. Even thoſe who have clearly diſtinguiſhed theſe two animals, have given to the hyæna the name of *dabuh*, which belongs to the baboon. Hence

 the

the hyæna is not the *dabuh* of the Arabians, nor the *jesef* or *sesef* of the Africans, as we are told by naturalists *. Neither should he be confounded with the *deeb* of Barbary. But, to prevent all future confusion arising from names, we shall, in a few words, give a detail of the researches we have made with regard to these animals.

Aristotle employs two names, *hyæna* and *glanus*. To be convinced that these appellations denote the same animal, we have only to compare the passages where they occur †. The ancient Latins preserved the name *hyæna*, and never used that of *glanus*. Among the modern Latins, we find the words *ganus* or *gannus* ‡, and

* Charleton, Exercit. p. 14. Brisson. Regn. Anim. p. 234.

† Hyæna colore lupi prope est, sed hirsutior, et juba per totum dorsum prædita est. Quod autem de ea fertur, genitale simul et maris et fœminæ eadem habere, commentitium est. Sed virile similiter, atque in lupis et canibus, habetur. Quod vero fœmineum esse videtur, sub cauda positum est, figura simile genitali fœminæ, sed sine ullo meatu. Sub hoc meatus excrementorum est. Quinetiam fœmina hyæna præter suum illud etiam simile, ut mas habet sub cauda sine ullo meatu, a quo excrementorum meatus est, atque sub eo genitale verum continetur. Vulvam etiam hyæna fœmina, ut cæteræ hujuscemodi fœminæ animantes, habet. Sed raro hyæna fœmina capitur, jam inter undecim numero, unam tantum cepisse, venator retulit quidam; *lib.* vi. *cap.* 32.—Quam autem alii glanum, alii hyænam appellant, corpore non minore, quam lupus est, juba qua equus, sed seta duriore, longioreque, et per totum dorsum porrecta. Molitur hæc insidias homini, canes etiam vomitionem hominis imitando capit, et sepulchra effodit humanæ avida carnis, ac eruit; *Arist. Hist. Anim. lib.* viii. *cap.* 5.

‡ Gesner. Hist. Quad. p. 555.

belbus,

belbus *, ſubſtituted for *hyæna.* According to Ray †, the Arabians call the hyæna *kabo*, or *zabo*, names ſeemingly derived from the word *zeeb*, which, in their language, ſignifies *a wolf.* In Barbary, the hyæna is called *dubbah*, as appears from the deſcription given of it by Dr. Shaw ‡. In Turkey, the hyæna, according to Nieremberg ||, is named *zirtlam*, in Perſia, *kaftaar*, according to Kaempfer §, and *caſtar*, according

* Belbi, id eſt, hyænæ, decem fuerunt ſub Gordiano Romæ. Julius Capitolinus; *Id. ibid.*

† Geſner, Hiſt. Quad. p. 555.

‡ The *dubbah* is of the badger-kind, near the bigneſs of a wolf. Its neck is ſo remarkably ſtiff, that, in looking behind, or ſnatching obliquely at any object, it is obliged, in the ſame manner with the hog, the badger, and crocodile, to move the whole body. It is of a buff colour, inclining to be reddiſh, with ſome tranſverſe ſtreaks of a dark brown; whilſt the hairs upon the neck are near a ſpan long, which it can occaſionally erect, notwithſtanding they are much ſofter than the briſtles of a hog. The paws are large and well armed, ſerving, in want of other food, to lay open the *medulla* of the *palmeta*, or *dwarf palm*; to dig up the roots of plants, and ſometimes the graves of the dead. . . . . Next to the lion and panther, the *dubbah* is the fierceſt of the wild beaſts of Barbary; and, from the characteriſtics of having long hair upon its neck, like a mane, moving its neck with difficulty, and diſturbing the graves of the dead, it may lay a greater claim to the hyæna of the ancients than the civet cat, or the badger, which are ſmaller animals; *Shaw's Travels, p.* 173.

|| Euſeb. Nieremb. Hiſt. Nat. p. 181.

§ Kaftaar, id eſt, taxus porcinus, ſive hyæna veterum (*Vid. in tab.* § 4. No. 4.), animal eſt, porci, ſeu ſcrophæ grandioris, magnitudinem ejuſdemque formam corporis obtinens, ſi caput, caudam, et pedes excipio. Pilis veſtitur longis, incanis, in ora dorſi, porcino more, longioribus, pene ſpithamalibus, apicibus nigris; caput habet lupino non diſſimile, roſtro nigro, fronte longiori,

ing to Pietro della Valle *. These are all the appellations which can, with propriety, be referred to the hyæna. It is probable, however, that the *lycaon* and *crocuta* of India and Æthiopia, mentioned by the ancients, are no other than the hyæna. Porphyry says expressly †, that the Indian *crocuta* is the hyæna of the Greeks. Indeed, all that the ancients have said, whether true or fabulous, concerning the *lycaon* and *crocuta*, apply to the hyæna. But we shall postpone all farther conjectures on this subject, till we come to treat of fabulous animals, and the relations they have with real ones.

ori, oculis rostro propinquioribus nigris et volubilibus, auribus nudis, fuscis, et acuminatis; cauda donatur prælonga, villis densis longioribus vestita, circulisque nigricantibus ad decorem intercepta. Crura in orbem quodammodo variegata, posteriora prioribus sunt longiora; pedes in quaternos ungues divisi, quos lupino more contrahit, ne videantur. Corpus habet striis a dorso ventre tenus pictum paucis, latis, et inæqualibus, alternatim fuscis et nigris. . . . . . Mira vi terram effodit, cavernisque abditum se illatebrare amat, diu sine cibo vivit, et raptu victum quærit. . . . Ferox et carnivora bestia, quippe in humana sæviens cadavera, quæ noctu ex tumulis impigre effodit, &c.; *Kaempfer, Amœnitates, p.* 411, 412.

* At Schiras, I saw a living animal, which the Persians called *castar*. It was as strong as a large dog. It was of the size, figure, and colour of a tiger (he means the panther), and the head and muzzle were long, like those of a hog. This animal is said to feed on human flesh, and to dig up the carcasses from the sepulchres, which made me conjecture that it might be the hyæna of the ancients. However this may be, it was a ferocious creature which I had never before seen; *Voyage de Pietro della Valle, tom.* v. *p.* 343.

† Porphyrius, in eo opere quod inscripsit de abstinentia ab usu carnium, hyænam dicit ab Indis appellari crocutam; *Gillius apud Gesner. Hist. Quad. p.* 555.

The

The panther of the Greeks, the *lupus canarius* of Gaza, and the *lupus Armenius* of the Arabians and modern Latins, ſeem to be the ſame animal, namely, the jackal, which Pollux ſays is called *cical* by the Turks *, or *thacal*, according to Spoon and Wheeler †: The modern Greeks call it *zachalia* ‡, the Perſians *ſiechal* ‖, or *ſchachal* §, and the Moors of Barbary *deeb* **, or *jackal*. We ſhall retain the name *jackal*, becauſe it has been adopted by ſome travellers, and content ourſelves with remarking in this place, that he differs from the hyæna not only in ſize, figure, and colour, but likewiſe in his manners; for the jackals commonly go in troops, and the hyæna is a ſolitary animal. Our modern nomenclators, in imitation of Kaempfer, call the jackal *lupus aureus*, becauſe his hair is of a lively yellow colour.

The jackal, as we have ſeen, is an animal very different from the hyæna, as well as from the glutton, which laſt is peculiar to the northern regions of Lapland, Ruſſia, and Siberia: It is even unknown in the temperate climates, and, conſequently, could never inhabit Arabia, and the other warm countries frequented by the hyæna. Beſides, the figure of the glutton re-

* Geſner, Hiſt. Quad. p. 675.

† Travels of Jacob Spoon and George Wheeler, vol. i. p. 114.

‡ Id. ibid.

‖ Voyage de Chardin en Perſe, tom. ii. p. 29.

§ Kaempfer, Amœnit. Exot. p. 413.

** Shaw's Travels, p. 174.

ſembles that of a very large badger; his limbs are ſo ſhort, that his belly nearly reaches to the ground; he has five toes both on the fore and hind-feet; no mane, and black hair over all the body, except ſometimes a few browniſh yellow hairs on the flanks. In a word, he poſſeſſes nothing in common with the hyæna, but his voracity. He was likewiſe unknown to the ancients, who had not penetrated far into the northern regions of Europe. Olaus * is the firſt author who mentions this animal, which he has called *gulo* on account of its gluttony. He was afterwards denominated *roſomak* in the Sclavonian language †, and *jerff*, or *wildfras* in the German. The French travellers have called him *glouton* ‡. In this ſpecies there are varieties, as well as in that of the jackal, which ſhall be pointed out in the particular hiſtory of thoſe animals. But theſe varieties, inſtead of making him approach nearer the hyæna, remove the two ſpecies to a ſtill greater diſtance.

The civet has nothing in common with the hyæna, except the fiſſure or ſac under the tail,

* Inter omnia animalia quæ immani voracitate creduntur inſatiabilia, gulo in partibus Sueciæ ſeptentrionalis, præcipuum ſuſcepit nomen, ubi patrio ſermone *Jerff* dicitur, et lingua Germanica *Wilsfras*, Sclavonice *Roſomako*, a multa commeſtione; Latina vero non niſi fictitio gulo, videlicet a guloſitate, appellatur; *Hiſt. de Gent. Septent. ab Olao Magno, p.* 138.

† Hiſt. de la Laponie, par Scheffer, p. 314.—Rzaczynſki, Auct. Hiſt. Nat. Polon. p. 311.

‡ Relation de la Grande Tartarie, p. 8.

and

and the mane along the neck and ſpine. It differs from the hyæna in the figure and ſize of the body, being one half ſmaller. Its ears are ſhort and covered with hair, while thoſe of the hyæna are long and naked. Beſides, it has ſhorter limbs, and five toes on each foot; but the legs of the hyæna are long, and he has only four toes on each foot. Neither does the civet dig the earth in queſt of dead bodies. It is, therefore, extremely eaſy to diſtinguiſh theſe animals.

With regard to the baboon, which is the *papio* of the Latins, he ſeems to have been miſtaken for the hyæna by an ambiguity of names, to which a paſſage of Leo Africanus *, copied by Marmol †, ſeems to have given riſe. The *dabuh*, ſay theſe two authors, ' is of the ſize and figure ' of the wolf, and tears dead bodies from the ' ſepulchres.' The ſimilarity of the name *dabuh* with *dubbah*, which laſt denotes the hyæna, joined to the avidity for dead carcaſſes, common to the *dabuh* and *dubbah*, have made them be miſtaken for the ſame animal, though it be expreſsly mentioned in the very paſſages we have quoted, that the *dabuh* has hands and feet like

* *Dabuh* Arabica appellatione Africanis *Seſef* dicitur. Animal et magnitudine et forma lupum refert, *pedes et crura hominis ſimiles*; reliquo beſtiarum genere non eſt noxius, ſed humana corpora ſepulchris evellit ac devorat; *Leon. Afric. de Afric. Deſcript. tom*. ii. *p*. 756.

† L'Afrique de Marmol, tom. i. p. 57.

thoſe

thoſe of a man, which correſponds with the baboon, but is inapplicable to the hyæna.

By looking at Belon's figure of the *lupus marinus* *, which Geſner has copied †, this animal might be miſtaken for the hyæna, becauſe there is a conſiderable reſemblance. But this deſcription correſponds not with our hyæna; for he tells us, that the *lupus marinus* is an amphibious animal, which feeds on fiſhes, and has ſometimes been ſeen on the coaſts of the Britiſh ocean. Beſides, Belon mentions none of the peculiar characters which diſtinguiſh the hyæna from all other quadrupeds. Belon, prepoſſeſſed, perhaps, with the notion that the civet was the hyæna of the ancients, has given the figure of the true hyæna, under the name of the *lupus marinus*; for the characters of the hyæna are ſo ſingular, that it is almoſt impoſſible to miſtake him. He is, perhaps, the only quadruped that has four toes on each foot. Like the badger, he has an orifice under the tail, which penetrates not into the body. He has long, ſtraight, naked ears; a head ſhorter and more ſquare than that of the wolf; but his legs, particularly the hind-ones, are longer. His eyes are placed like thoſe of a dog. The hair of his body and mane is of a dark gray colour, mixed with a little yellow and black, and tranſverſe duſky undulations. He is

* Belon, de Aquatil. p. 35.

† Geſner. Hiſt. Quadrup. p. 674.

of

of the ſize of a wolf, only his body is ſhorter and more compact.

This ſavage and ſolitary animal lives in the caverns of the mountains, in the clefts of rocks, or dens which he digs for himſelf in the earth. His diſpoſition is extremely ferocious, and, though taken young, can never be tamed *. Like the wolf, he feeds on prey; but he is ſtronger and more daring. He ſometimes attacks men, and ruſhes with fury upon cattle of all kinds †. He follows the flocks, and often breaks down the doors of ſtables, and the incloſures of the ſheep-folds. His eyes ſparkle in the dark; and he is ſaid to ſee better in the night than in the day. All naturaliſts agree, that his

* Hyænam marem Iſpahani curioſitatis cauſa alebat dives quidam *Gabr* ſeu ignicola, ſuburbii *Gabriſtaan*, captam dum ubera ſugeret, in latibulis vicini montes. Ad eam ſpectandam progreſſus, beſtiam eo ſitu depinxi, quo in fovea ſubdiali duarum orgyarum profunditatis (cui incluſa ſervabatur) cubantem inveni. Deſiderio noſtro poſſeſſor omni ex parte ſatisfacturus eam educi quoque curavit in aream; quod ut tuto fieret, demiſſo fune roſtrum prius illaqueabat; mox deſcendentes ſervi protracta utrinque labra funiculo ex pilis contorto, ſtrenue colligabant. Hoc facto educitur, laxatoque fune, qui roſtrum frænabat, beſtia latius diſcurrere permittitur, non ſemel apprehenſa, more athletico in terram projicitur, ac varius laceſſitur vexationibus; quibus illa irrito nocendi niſu obluctata, ſubinde mugitum edidit vitulino ſimillimum. Narrabant Gabri ſic frænatam nuper ſe oppoſuiſſe duobus leonibus, quos aſpectante oculo ſereniſſimo in fugam verterit; *Kaempfer, Amœnitates, p.* 412, 413.

† In Abyſſinia, the wolves are ſmall and timorous. But they have an animal called hyæna, which is extremely bold and rapacious. He attacks men in the open day as well as during the night, and often breaks down the doors and incloſures of the ſheep-folds; *Hiſt. de l'Abiſſinie, par Rudolf, p.* 41.

cry resembles the groanings of a man who vomits, or rather the lowing of a calf, according to Kaempfer *.

The hyæna defends himself against the lion, is not afraid of the panther, and attacks the ounce, which is not able to resist him. When prey fails, he digs the earth with his feet, and tears out the dead bodies of animals and men, who, in the countries which he inhabits, are equally buried in the fields. He is found in almost all the warm climates of Africa and Asia; and the animal called *farasse* at Madagascar †, which in figure resembles the wolf, but is larger, stronger, and more cruel, is perhaps the same with the hyæna.

A greater variety of absurd stories have been related concerning the hyæna than any other quadruped. The ancients gravely tell us, that the hyæna is alternately male and female; that, when it brings forth, sucks, and rears its young, it continues to be a female during the whole year; but that, the following year, it resumes the functions of the male, and makes its companion submit to the lot of the female. This story, it is apparent, has no other foundation than the fissure under the tail, which is common to the

* Kaempfer, loc. supra citat.

† In Madagascar, there are animals called *farasses*, of the same nature with the wolf, but still more voracious; *Mem. pour servir à l'Hist. des Indes Orient. p.* 168.—See also *l'Hist. de Orenoque, par Joseph Jumilla, tom.* iii. *p.* 603.

male

Plate CXXVIII.

A. Bell Sculp.t

HYÆNA.

male as well as the female, independent of the organs of generation peculiar to both ſexes, which, in the hyæna, are ſimilar to thoſe of all other quadrupeds. The hyæna has been ſaid to imitate the human voice, to remember the names of ſhepherds, to call upon, to faſcinate, and to deprive them of the power of motion; and, at the ſame time, to terrify the ſhepherdeſſes, to make them run from and neglect their flocks, to render them frantic with love, &c.— All this might happen without the hyæna! and I here ſtop, leſt I ſhould, with Pliny, incur the cenſure of delighting in compiling and relating ridiculous fables.

SUPPLEMENT.

IN the year 1773, I ſaw a male hyæna at the fair of St. Germain. The hyæna above deſcribed was perfectly ferocious; but this male, having been tamed when young, was remarkably gentle; for, though his maſter often provoked him with a cudgel, in order to make him erect his mane, he inſtantly afterwards ſeemed to forget the affront. He played with his keeper, who put his hand into the animal's mouth, without the leaſt apprehenſion of danger. This hyæna was preciſely of the ſame ſpecies with that whoſe deſcription I have formerly given; and I have nothing

nothing to add to it, except that the tail of this male was all white, without any mixture of other colours. He was ſomewhat larger than the firſt, being three feet two inches long, from the extremity of the muzzle to the origin of the tail, and carried his head lower than is repreſented in the figure. His height was two feet three inches; and his hair was white, intermixed with ſtreaks and ſpots of black, both on the body and legs.

In the ſouth part of the iſland of Meroë, there are hyænas much larger than thoſe of Barbary. Their muzzle is longer, and has a greater reſemblance to that of a dog. This animal is ſo ſtrong, that he carries off a man to the diſtance of a league or two, without ſtopping. His hair is coarſe, browner than that of the other kind, and the tranſverſe ſtreaks are blacker. His mane erects not from the head, but from the tail. Mr. Bruce was the firſt who remarked of this hyæna, as well as that of Syria and Barbary, that, when forced to fly, they are lame of the left hind-leg, which continues ſo remarkably for about a hundred paces, that the animal ſeems as if he would tumble down on his left ſide*.

* Note communicated to M. de Buffon by Mr. Bruce.

The CIVET* and the ZIBET†.

IT is the opinion of moſt naturaliſts, that the perfume called *muſk* was furniſhed by one ſpecies of animal only. I have ſeen two of theſe animals, which, it muſt be allowed, have many eſſential relations, both in their external and internal ſtructure; but they differ from each other by ſuch a number of other characters, as entitle them

* The civet has ſhort rounded ears, ſky-blue eyes, a ſharp noſe, black at the point; the ſides of the face, chin, breaſt, legs, and feet, are black; the reſt of the face, and part of the ſides of the neck, are white, tinged with yellow. From each ear three black ſtripes proceed, and end at the throat and ſhoulders. The back and ſides are cinereous, tinged with yellow, and marked with large duſky ſpots diſpoſed in rows. The hair is coarſe, and that on the top of the body is longeſt, ſtanding up like a mane. The tail is ſometimes wholly black, and ſometimes ſpotted near the baſe. The length, from noſe to tail, is about two feet three inches, that of the tail is fourteen inches; and the body is pretty thick; *Pennant's Synopſ. of Quad. p.* 234.

Animal Zibethi; *Caius apud Geſner, p.* 837.

Civette; *Mem. pour ſervir a l'Hiſt. des Animaux, prem. partie, p.* 157.

Civet cat; *Raii Synopſ. Quad. p.* 178.

Coati civetta vulgo; *Klein, Quad. p.* 73.

Meles faſciis et maculis albis, nigris, et refuſcentibus variegata; *Briſſon. Quad. p.* 186.

† The zibet has ſhort round ears, a ſharp long noſe, a pale cinereous face. The head and lower part of the neck are mixed with dirty white, brown, and black. The ſides of the neck are marked with ſtripes of black, beginning near the ears, and

them to be regarded as two diſtinct ſpecies. To the firſt we have preſerved the ancient name of *civet*, and to the ſecond we have given, for the ſake of diſtinction, that of *zibet*. The civet appears to be the ſame with that deſcribed by the gentlemen of the Academy in the *Mem. pour ſervir a l'Hiſtoire des Animaux*, by Caius in Geſner, p. 873. and by Fabius Columna, who has given a figure of both male and female in the work of Jean Faber, which is at the end of that of Hernandes *.

The ſecond ſpecies, which I have called *the zibet*, ſeems to be the ſame animal with that deſcribed by M. de la Peyronnie, under the name of *the muſk animal*, in the *Mem. de l'Acad. des Sciences, année* 1731. Both differ from the civet by the ſame characters; both

and ending at the breaſt and ſhoulders. From the middle of the neck, along the ridge of the back, extends a black line, reaching ſome way up the tail; on each ſide are two others. The ſides are ſpotted with aſh-colour and black. The tail is barred with black and white; and the black bars are broader on the upper ſide than on the lower; *Pennant's Synopſ. of Quad. p.* 235.

Animal de muſk; *Mem. de l'Acad. des Sciences, année* 1731, *p.* 443.

Felis Zibethi; *Geſner. Hiſt. Quad. p.* 836.

Animal Zibethi; *Aldrov. de Quad. Digit. p.* 340.

Viverra Zebethi, cauda annalata, dorſo cinereo nigroque undatim ſtriato; *Linn. Syſt. Nat. p.* 65.

Note, The nomenclators have not diſtinguiſhed theſe two animals; and we know not to which of them their phraſes and definitions ought to be referred; becauſe they give no characters which are not common to both.

* Hernandes, Hiſt. Mex. p. 580.

want

want the mane or long hair on the ſpine; and both have annulated tails. But the civet has neither mane nor rings. It muſt be allowed, however, that our zibet and the muſk animal of M. de la Peyronnie, have not ſuch a perfect reſemblance, as to leave no doubt concerning the identity of their ſpecies. In the zibet, the rings on the tail are larger than thoſe of the muſk animal. The former has not a double collar, and his tail is ſhorter in proportion to the length of his body. But theſe differences are ſlight, and appear to be accidental varieties only, to which the civet muſt be more liable than other wild animals, becauſe he is kept in a domeſtic ſtate in many parts of India and the Levant. It is certain, however, that our zibet has a greater reſemblance to the muſk animal of M. de la Peyronnie than to the civet, and, conſequently, the two former may be regarded as belonging to the ſame ſpecies; for we have no abſolute certainty that the civet and zibet are not varieties of the ſame ſpecies, becauſe we are ignorant whether they can intermix and produce fertile individuals: And, when we ſay, that they ſeem to be different ſpecies, we only mean that the preſumption is exceedingly ſtrong, ſince it is founded on permanent differences in their characters, which generally diſtinguiſh real ſpecies from accidental varieties.

The animal we here call *the civet*, is named

*falanoue** in Madagascar, *nzime* or *nzfusi* † in Congo, *kankan* ‡ in Æthiopia, and *kastor* ‖ in Guiney. We are certain, that it is the civet of Guiney; for our subject was sent alive from Guiney to St. Domingo, to one of our correspondents, who, after feeding it some time, killed it for the conveniency of carriage.

The zibet is probably the civet of Asia, of the East Indies, and of Arabia, where he is called *zebet* or *zibet*, an Arabian word, which signifies also the perfume of this animal. He differs from the civet in having a longer and thicker body, a thinner and flatter muzzle, which is somewhat concave on the upper part; while the muzzle of the civet is thicker, shorter, and a little convex. The ears of the former are also larger and more erect. His tail is longer, and better marked with annular spots, and his hair is shorter and softer. He has no mane, or long hair on the neck and spine, no black spots under the eyes, or on the cheeks, which are remarkable characters in the civet. Several travellers have suspected that there were two species of civets; but nobody has examined them so minutely as to furnish a distinct description. We have seen both, and, after a careful compa-

* Voyage de Flacourt, p. 150. 154.

† Merolla, quoted by M. l'Abbé Prevost. Hist. Gen. des Voyages, tom. iv. p. 585.

‡ Id. tom. iii. p. 295.

‖ Id. ibid. tom. iv. p. 236. tom. v. p. 86.

rison,

riſon, we think they are not only different ſpecies, but belong, perhaps, to different climates.

Theſe animals have been called *muſk-cats* or *civet-cats*, though they have nothing in common with the cat but agility of body. They rather reſemble the fox, eſpecially in the head. Their ſkin is marked with bands and ſpots, which have made them be miſtaken for the panther, when ſeen at a diſtance. But they differ from the panther in every other reſpect. There is an animal called *the genet*, which is ſpotted in the ſame manner, whoſe head is nearly of the ſame form, and which, like the civet, has a ſac where an odoriferous liquor is ſecreted. But the genet is ſmaller than our civet. Its limbs are ſhorter, and its body much thinner. Its perfume is weak, and of ſhort duration: But the perfume of the civet is very ſtrong; and that of the zibet is ſtill more violent and piercing*. This odorous liquor is found in the fiſſure which theſe two animals have near the organs of generation. It is a thick humour, of the conſiſtence of pomatum, and its perfume, though very ſtrong, is agreeable, even when it iſſues from the body of the animal. This matter of the civet muſt not be

* Notwithſtanding all the attention that has long been beſtowed in collecting foreign animals at the *Menagerie*, theſe are the only two of this ſpecies which have appeared, or which, among the number of muſk animals that we have ſeen there, had a ſtrong perfume; *Mem. de la Peyronnie inſéré dans ceux de l'Académie des Sciences, année* 1731, *p.* 444. The author, in this paſſage, is ſpeaking of the muſk animal, which we believe to be the ſame with our zibet.

confounded with muſk, which is a ſanguineous humour, derived from an animal totally different from the civet or zibet. The animal which produces the muſk is a ſpecies of roebuck, or goat, without horns, which has nothing in common with the civets but its ſtrong perfume.

Hence theſe two ſpecies of civets have never been properly diſtinguiſhed. Both have ſometimes been confounded with the ſtinking weaſels*, the genet, and the muſk deer; they have alſo been miſtaken for the hyæna. Belon, who has given a figure and deſcription of the civet, maintains that it was the hyæna of the ancients †. His error is the more excuſable that it is not without ſome foundation. It is certain, that moſt of the fables related concerning the hyæna have been derived from the civet. The philters, ſaid to have been extracted from certain parts of the hyæna, and their power of exciting love, indicate ſufficiently that the ancients knew the ſtimulating virtue of the civet's pomatum, which is ſtill uſed for this purpoſe in the Eaſt. What they have related concerning the uncertainty of the ſex in the hyæna, applies ſtill better to the civet; for in the male nothing appears externally but three apertures, ſo perfectly ſimilar to thoſe of the female, that it is impoſſible other-

* Aldrovandus remarks, that the ſtinking weaſel, called *caſſam* in Virginia, is the civet; *De Quad. Digit. p.* 342. This error has been adopted by Sir Hans Sloane, who, in his Hiſtory of Jamaica, ſays that there are civets in Virginia.

† Belon, Obſerv. fol. 93.

wiſe

wife to diftinguifh the fex than by diffection. The aperture in which the liquor, or rather thick odorous humour, is found, lies between the other two, and in the fame direct line which extends from the os facrum to the pubis.

The error of Gregoire de Bolivar, with regard to the climates which gave birth to the civets, has been more generally diffufed than that of Belon. After telling us, that they are common in Africa and the Eaft Indies, he afferts pofitively, that they are very numerous in every part of South America. This affertion, tranfmitted to us by Faber, has been copied by Aldrovandus, and adopted by all fucceeding writers on the fubject. It is certain, however, that the civets are peculiar to the warm climates of the Old Continent, and could never pafs by the north into America, where, in fact, no civets ever exifted till they were tranfported from the Philippine iflands, and the coaft of Africa. But, as the affertion of Bolivar is pofitive, and mine negative only, I muft give my reafons for proving the falfity of the fact. To enable the reader to judge, befide the remarks I am about to make, I fhall quote the paffage of Faber entire *. 1. Faber's figure was left to him by Recchi, without any defcrip-

* Hoc animal (zibethicum fcilicet) nafcitur in multis Indiæ Orientalis atque Occidentalis partibus, cujufmodi in orientali funt provinciæ Bengala, Ceilan, Sumatra, Java major et minor, Malipur, ac plures aliæ —— In Nova Hifpania vero funt provinciæ de Quatemala, Campege, Nicaragua, de Vera-Cruce, Florida, et magna illa infula Sancti Dominici, aut Hifpaniola, Caba, Mantalino,

defcription *. Upon this figure is infcribed *animal zibethicum Americanum.* It has no fimilarity either to the civet or zibet, but rather refembles the badger. 2. Faber gives a defcription and figures of the male and female civet, which refemble our zibet; but thefe civets are not the fame animal † with that reprefented in the firft figure; and the fecond two are not figures of American animals, but of civets belonging to the Old Continent, of which Fabius Columna, fellow-member with Faber of the Lyncean academy, had obtained drawings at Naples, and fent him the figures and defcriptions. 3. After quoting Gregoire de Bolivar ‡, concerning the

lino, Guadalupa, et aliæ——In regno Peruano animal hoc magna copia reperitur, in Paraguay, Tucuman, Chiraguanas, Sancta-Cruce, de la Sierra, Jungas, Andes, Chiachiapoias, Quizos, Timana, novo regno, et in omnibus provinciis magno flumine Maragnone confinibus, quæ circa hoc ferme fine numero ad duo leucarum millia funt extenfa. Multo adhuc plura ejufmodi animalia nafcuntur in Brafilia, ubi mercatura vel cambium zibethi five algaliæ exercitatur; *Novæ Hifp. Anim. Nardi Antonii Recchi Imagines et Nomina, Joannis Fabri Lyncei Expofitione, p.* 539.

* See what Faber remarks, in his preface, concerning the animals of which he is about to treat. Non itaque fis nefcius, hos in animalia, quos modo commentarios edimus, mera noftra confcriptos effe, induftria ac conjectura, ad quafnam animantium fpecies illa reduci poffint, cum in autographo, præter nudum nomen et exactam picturam, de hiftoria ne gry quidem reperiatur; p. 465.

† Faber himfelf is obliged to acknowledge that the figures had no refemblance. Quantum hæc icon ab illa Mexicana differat, ipfa pagina oftendit. Ego climatis et regionis differentiam plurimum poffe non nego; p. 581.

‡ Miror profecto Gregorii noftri fummam in animalium perquifitione induftriam et tenaciffimam eorum quæ vidit unquam,

the climates where the civet is found, Faber concludes with admiring Bolivar's great memory, and with telling us, that he heard all this relation from the mouth of its author. Theſe three remarks are alone ſufficient to throw a ſuſpicion on this pretended *animal zibethicum Americanum*, as well as upon the aſſertions of Faber borrowed from Bolivar. But, to render our detection of this error complete, we find, in a tract compoſed by Fernandes upon American animals, at the end of the volume which contains the Natural Hiſtory of Mexico by Hernandes, Recchi, and Faber, a paſſage that flatly contradicts Bolivar, and where Fernandes aſſures us, that the civet is not an American animal *, but that, in his time, ſome of them had been tranſported from the Philippine iſlands to New Spain †. In fine, by

quam memoriam. Juro tibi, mi lector, hæc omnia quæ hactenus ipſius ab ore et ſcriptis hauſi, et poſthac dicturus ſum, plura rarioraque illius ipſum ope libri memoriter deſcripſiſſe, et per compendium quodammodo (cum inter colloquia protractiora et jam plura afferat) tantum contraxiſſe; p. 540.

* De Æluro a quo Gallia vocata corraditur, c. xxxiv. Non me latet vulgare eſſe, hoc felis vocari Genus Hiſpanis, quanquam advenam non indigenam, verum qui ex inſulis Philippicis cœpit jam in hanc Novam Hiſpaniam adferri; *Hiſt. Anim. et Miner. Nov. Hiſp. lib.* i. *a Franciſc. Fernandes, p.* 11.

† The civet is found in the mountains of the Philippine iſlands. His ſkin reſembles that of the tiger, and he is equally ſavage, though much ſmaller. When ſeized by the hunters, they tie him, and, after taking out the *civet* from a ſmall purſe under the tail, they ſet him at liberty, that they may have an opportunity of catching him another time; *Relat. de divers Voyages, par Thevenot, Relat. des Iſles Philippines, p.* 10. We find a number of civets in the mountains of the Philippine iſlands; *Hiſt. Gen. des Voyages, tom.* x. *p.* 397.

uniting this poſitive teſtimony of Fernandes to that of all the travellers who ſay that the civets are very common in the Philippine iſlands, in the Eaſt Indies, and in Africa, none of whom mention their even having ſeen theſe animals in America, it will no longer admit of a doubt, that the civet is not a native of America, but an animal peculiar to the warm climates of the Old Continent, and was never found in the New till after it had been tranſported thither. If I had not guarded againſt miſtakes of this kind, which are too frequent, I would have announced our civet as an American animal, becauſe it was tranſmitted from St. Domingo; but, having examined the memoir and letter of M. Pagés, which accompanied the animal, I found that it came originally from Guiney*. Theſe particular facts I conſider as ſo many proofs of the general poſition, that there is a real diſtinction between all the animals peculiar to the ſouthern regions of each Continent.

* This civet was brought from Guiney. It fed upon fruits; but it likewiſe very willingly eat fleſh. While it lived, it diffuſed, to a great diſtance, an unſupportable odour of muſk; and, after its death, I was not able to endure the ſcent in a chamber. Immediately above the ſcrotum, I found a fiſſure, which was a common paſſage to two pouches, one on each ſide of the teſticles. Theſe pouches were full of a gray, thick, viſcid humour, mixed with long hairs of the ſame colour with thoſe I found in the pouches. The facs or pouches were about an inch and a half deep; and their diameter was much larger at the top than at the bottom; *Extrait du Mem. de M. Pagés, Médecin du Roi à Saint Domingue, daté du Cap. le 6 Septembre* 1759.

Hence

Hence the civet and zibet belong to the Old Continent. They differ from each other only by the external marks formerly pointed out. For the ſtructure of their internal organs, and of the reſervoirs which contain their perfume, I muſt refer to the excellent deſcriptions of Meſſrs. Morand and Peyronnie *. With regard to what remains of the hiſtory of theſe two animals, as it is difficult to refer particular facts to the one in preference to the other, I have comprehended the whole under one article.

The *civets* †, though originally natives of the warm climates of Africa and Aſia, can live in temperate and even in cold countries, provided they are defended from the injuries of the weather, and are fed with ſucculent nouriſhment. Numbers of them are kept in Holland for the purpoſe of ſelling their perfume. The *civet* made at Amſterdam is preferred by our merchants to that which comes from the Levant or India, becauſe the latter is generally leſs pure. That brought from Guiney would be the beſt ‡,

* Mem. de l'Acad. des Sciences, année 1728, et 1731.

† This word, when uſed in the plural, denotes both the *civet* and *zibet*.

‡ There are a number of civets in Malabar. It is a ſmall animal, nearly of the figure of a cat, only its muzzle is ſharper, its claws leſs dangerous, and its cry different. The perfume it produces is ſecreted, like a kind of greaſe, in an aperture under the tail. It is extracted, from time to time, and never abounds, except the animal be well fed. It conſtitutes a great trade at Calicut; but, unleſs a man collects it himſelf, it is almoſt always adulterated; *Voyage de Dellon, p. 11. Optimum zibethi genus ex Guinea advehitur, ſinceritate eximium*; Joannes Hugo.

if the Negroes, as well as the Indians and Levanters *, did not adulterate it with the juices of plants, or with labdanum, ſtorax, and other balſamic and odoriferous drugs.

To collect this perfume, the animal is put into a narrow cage, where he cannot turn himſelf. The cage is opened at one end; the animal is drawn a little out by the tail, and fixed in this poſition, by putting a ſtick acroſs the bars of the cage, which likewiſe enables the people to lay hold of the hind-legs. They then introduce

* The cat which produces the *civet*, has the head and muzzle of the fox. It is large, ſpotted like a tiger, and extremely ferocious. Every two days, the *civet* is extracted, which is a mucous ſubſtance, or thick ſuet, lying in a cavity under the tail, &c.; *Voyage de la Maire*, *p*. 100. It is the Guiney *civet* of which the author is here ſpeaking.—I ſaw at Cairo, in the houſe of a Venetian, ſeveral ferocious animals, nearly of the ſize of a ſetting dog, but thicker, and of the figure of a cat. They are called *muſk cats*, and are kept in cages. . . . . To prevent them from biting, they are confined ſeparately in ſtrong wooden cages, ſo narrow that the animals cannot turn themſelves. . . . . The people open ſo much of the hind part of the cage as is neceſſary to let the animal's legs be drawn out, without allowing it to turn to wound the perſon who holds it; and, after collecting the *civet*, the animal is returned to its priſon; *Voyage de Pietra della Valle*, *tom*. i. *p*. 401.—The civets, which are called *zebides* in Arabic, are naturally ſavage, and inhabit the mountains of Æthiopia. Many of them are tranſported into Europe: They are taken when young, and fed in ſtrong wooden cages, with milk, meal, boiled wheat, rice, and ſometimes fleſh, &c.; *l'Afrique de Marmol*, *tom*. i. *p*. 57.—*Voyage de Thevenot*, *tom*. i. *p*. 476.—The civets of Java produce as great a quantity of perfume as thoſe of Guiney; but it is neither ſo white, nor ſo good; *Suite de la Relation d'Adam Olearius*, *tom*. ii. *p*. 350.—Indigenæ ita hoc pigmentum adulterant, ut auſim affirmare, nullum zibethum ſincerum ad nos deferri; *Proſp. Alp. Hiſt. Egypt*. *p*. 239.

a ſmall

a ſmall ſpoon into the ſac that contains the perfume, with which they ſcrape all its internal ſides, and put the matter into a veſſel, which is covered up with great care. This operation is repeated two or three times a-week. The quantity of odorous humour depends much on the quality of the nouriſhment, and the appetite of the animal, which always produces more in proportion to the goodneſs of its food. Boiled fleſh, eggs, rice, ſmall animals, birds, young poultry, and eſpecially fiſhes, are the beſt kinds of food, and they ought to be varied in ſuch a manner as to preſerve the health and excite the appetite. He requires very little water; and, though he drinks ſeldom, he diſcharges urine frequently; and, in this operation, the male is not to be diſtinguiſhed from the female.

The perfume of theſe animals is ſo ſtrong, that it infects all parts of the body: The hair and the ſkin * are ſo thoroughly penetrated with this odour, that they retain it long after death; and,

* The reſervoir that contains the odorous liquor of the civet lies below the anus, and above another orifice, which is ſo ſimilar in both ſexes, that, without diſſection, all civets appear to be females. . . . . As this liquor becomes incommodious, when the reſervoirs are too full of it, the animal is provided with proper muſcles for ſqueezing it out. Though it be collected in great quantities in theſe reſervoirs, where it is likewiſe brought to the higheſt perfection; yet it ſeems to be diffuſed by abſorption through the whole ſkin; for the hair of both our civets had a ſtrong ſmell; that of the male, particularly, was ſo impregnated with perfume, that the hand, after gently rubbing his hair, retained an agreeable odour for a conſiderable time; *Hiſt. de l'Acad. des Sciences, tom.* i. *p.* 82.

during

during life, it is ſo violent as to be quite inſupportable, eſpecially if a perſon is ſhut up in the ſame apartment with the animal. When heated with rage, the odour becomes more highly exalted; and, if the animal be tormented till he ſweats, the keeper collects the ſweat, which has likewiſe a ſtrong ſcent, and ſerves for adulterating, or at leaſt augmenting the quantity of the perfume.

The civets are naturally ſavage, and even ſomewhat ferocious; yet they are eaſily tamed, ſo as to be approached and handled without danger. They have ſtrong ſharp teeth; but their claws are weak and blunt. Though their bodies are thick, they are active and nimble. They leap like cats, but can likewiſe run like dogs. They live by hunting and ſurpriſing ſmall animals and birds. Like the fox, they enter the court-yards, and carry off poultry. Their eyes ſparkle in the dark, and they probably ſee well during the night. When animal food fails them, they eat roots and fruits. They drink little, never frequent moiſt places, and ſpontaneouſly live among burning ſands and arid mountains. In their own climate, they are very prolific; but, though they can live and produce their perfume in temperate regions, they are incapable of multiplying. Their voice is ſtronger, and their tongue ſmoother, than thoſe of the cat; and their cry has a reſemblance to that of an enraged dog.

In Europe, the unctuous perfume extracted from theſe animals is called *civet*, and *zibet* or *algalia*

Plate CXXX.

A. Bell Sculp.

CIVET.

Plate CXXIX.

A. Bell Sculp.

ZIBET.

algalia in Arabia. It is more uſed in India and the Levant, than in the more northern countries. It is hardly now employed as a medicine; but the perfumers and confectioners make uſe of it in the compoſition of their perfumes. The odour of the civet, though ſtrong, is more agreeable than that of muſk. But both of them loſt their reputation upon the diſcovery of ambergris, or rather the mode of preparing it: And even the ambergris, which not long ago was eſteemed for the excellence of its ſmell, has ceaſed to be admired by people of a refined and delicate taſte.

SUPPLEMENT.

IN the year 1772, M. de Ladebat ſent a live civet to M. Bertin, ſecretary of ſtate. This animal was given by the Dutch governour of Fort Mine, on the coaſt of Africa, to the captain of one of M. de Ladebat's ſhips, in the year 1770, and was landed at Bourdeaux in the month of November 1772. On its arrival, it was very weak; but, after ſome days, reſumed its ſtrength, and, at the end of five or ſix months, its ſize was augmented about four inches. It was fed with raw and boiled fleſh, fiſh, ſoup, and milk. It was kept warm during the winter; for it ſeemed to ſuffer much from cold, and became leſs ferocious when expoſed to a cool air.

THE GENET*.

THE genet is a ſmaller animal than the civets. It has a long body, ſhort legs, a ſharp muzzle, a ſlender head, ſmooth, ſoft hair of a ſhining grayiſh aſh-colour, marked with black ſpots, which are round and detached on the ſides, but unite ſo cloſely on the back, that they ſeem to form continued black bars, ſtretching along the body. Upon the neck and ſpine, there is a kind of mane or long hair, forming a black bar from the head to the tail, which laſt is as long as the body, and marked with ſeven or eight alternately black and white rings. The black ſpots on the neck are alſo in the form of bars; and under each eye there is a very conſpicuous white ſpot. Under the tail, and in the

* The ears of the genet are a little pointed; the body is ſlender, and the tail very long. The colour of the body is a tawny red, ſpotted with black, and the ridge of the back is marked with a black line. The tail is annulated with black and tawny, and the feet are black. Sometimes the ground colour of the hair inclines to gray. It is about the ſize of a martin, but the fur is ſhorter; *Pennant.*

La Genetta; *Belon, Obſ. p.* 73.

Genetta; *Geſner. Hiſt. Quad. p.* 549.

Genetta, vel Ginetta; *Raii Synopſ. Quad. p.* 201.

Viverra genetta, cauda annulata, corpore fulvo nigricante maculata; *Linn. Syſt. Nat. p.* 65.

Muſtela cauda ex annulis alternatim albidis et nigris variegata. . . . Genetta, La Genette; *Briſſon. Regn. Anim. p.* 252.

Coati, genetta Hiſpanis; *Klein. Quad. p.* 73.

ſame

ſame ſituation as in the civets, the genet has an aperture or ſac, in which is ſecreted a kind of perfume; but it is weak, and ſoon loſes its odour. The genet is longer than the martin, to which it has a great reſemblance in figure, manners, and diſpoſitions. But the genet ſeems to be more eaſily tamed. Belon tells us, that he ſaw genets in the houſes of Conſtantinople, which were as tame as cats, and allowed to run about, without doing any kind of miſchief; and that they are called *Conſtantinople cats*, *Spaniſh cats*, or *genet cats*. They have nothing, however, in common with cats, but the art of watching and catching mice. It is, perhaps, becauſe they are found only in Spain and the Levant, that they have obtained the names of theſe countries; for the word *genet* is not derived from the ancient languages, and is probably a new name, taken from ſome place frequented by the genet, which we know is very common in Spain, where a certain race of horſes are called *genets*. Naturaliſts pretend, that the genets inhabit only moiſt places, and the neighbourhood of brooks; and that they are never found in mountains or dry grounds. Their ſpecies is not numerous, or at leaſt much diffuſed. There are none in France *, or in any other province of Europe, except Spain and Turkey. Hence, for their ſubſiſtence and multiplication, they require a warm climate; yet none of them appear to be found in the

* See the Supplement, p. 256.

warm

warm countries of Africa and India; for the foſſane, which is called the *Madagaſcar genet*, is a different ſpecies, and ſhall afterwards be deſcribed.

The ſkin of this animal makes a light and handſome fur. Genet muffs were very faſhionable ſome years ago, and gave a high price. But, ſince we learned the art of counterfeiting them, by painting with black ſpots the ſkin of the gray rabbit, their price has fallen three-fourths, and the mode has changed.

SUPPLEMENT.

I Remarked, under the article *genet*, that the ſpecies was not widely diffuſed, and that there were none of them in France, nor in any other province of Europe, except Spain and Turkey *. I had not then learned that genets were found in our ſouthern provinces, and that they are very common in Poitou, where they are known by the name of *genets*, even to the peaſants, who aſſure us, that theſe animals inhabit only moiſt places and the banks of rivulets †.

The Abbé Roubaud, author of the *Gazette d'Agriculture*, and ſeveral other uſeful works, was the firſt who announced to the public the exiſtence of this animal as a native of France.

* See above, p. 255.

† Extrait des Affiches du Poitou, du Jeudi, 10 Fevrier 1774.

In

In the month of April 1775, he ſent me a genet which he had killed at Livray in Poitou, and which, except ſome variations in the colour of the hair, was the ſame with the Spaniſh genet. This animal is likewiſe found in the neighbouring provinces.

'For theſe thirty years that I have lived in 'the province of Rouergue,' ſays M. Delpeche, 'it has been a conſtant practice among our 'peaſants to bring dead genets every winter to a 'certain merchant of this place, who told me 'that they were not numerous, but that they 'live in the neighbourhood of Villefranche, and 'burrow, during the winter, in holes, like rab'bits. If neceſſary, I can ſend you ſome dead 'ſpecimens of this creature*.'

We have given a figure of a female genet, which differs ſo much from the female formerly repreſented, as to merit a particular deſcription. It was ſhown at the fair of St. Germain in the year 1772. It was fierce, and endeavoured to bite. It was kept in a narrow roundiſh cage, which rendered it difficult to be drawn. It was fed with fleſh, and had the phyſiognomy, and all the principal characters of the genet formerly repreſented. The head was long and ſlender; the muzzle was alſo long, and advanced beyond the under jaw. The eye was large, with a narrow pupil. The ears were round; and the hair of the head and body was ſpotted. The tail was

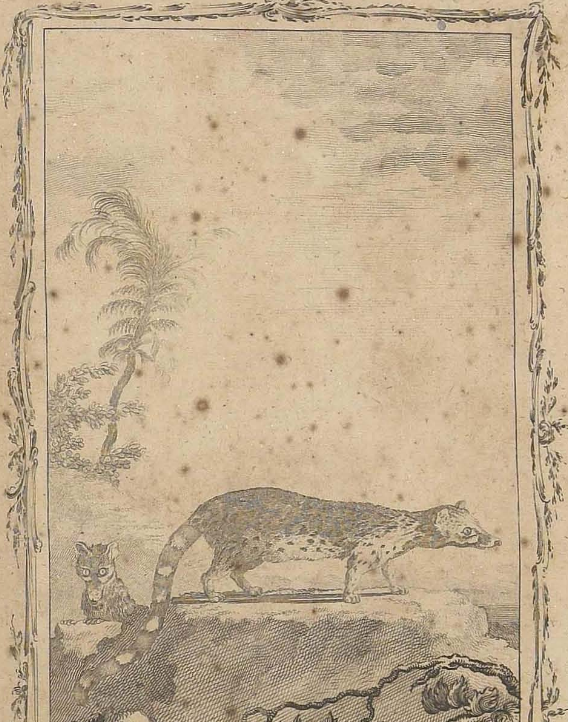
* Lettre de M. Delpeche, Maitre des Arts, à M. de Buffon.

 long

long and bushy. This animal was somewhat thicker than the former. The latter, indeed, was young, for it grew considerably larger in three or four months: We could not learn from what country it had been brought: The keeper had purchased it, seven or eight months before, in London. It was in perpetual motion, never resting, except during the time it slept.

The genet now under consideration was twenty inches long, and seven inches and a half high. The upper part of the neck was more bushy than that of the former genet, whose hair was all of an equal length. The circular bars on the tail are less distinct, and, indeed, extend not farther than about one third part of the tail. The whiskers are black, and much longer, being two inches seven lines long, and lie upon the cheeks, instead of being erect, as in the cats and tigers. The nose is black, and the nostrils very much arched. Above the nose there is a black line, which extends to between the eyes, and is accompanied by two white bands. Above the eyes there is a white spot, and a white band below them. The ears are black, but longer and narrower at the base than those of the first genet. The hair of the body is of a whitish gray colour, mixed with large black hairs, which, being reflected, seem to form a kind of black undulations. The upper part of the back is striped and spotted with black; the rest of the body is marked in the same manner, but the black is fainter.

Plate CXXXI.



A. Bell Sculp.t

GENET.

Plate CXXXII.

FRENCH GENET.

The belly is white, and the legs and thighs black. The paws are ſhort; and there are five toes on each foot. The claws are white and crooked. The tail is ſixteen inches long, and about two inches thick at the origin; the upper third part of the tail is of the colour of the body, and marked with black rings, which are very ill defined. The other two thirds of it are black.

The CANADIAN MUSK RAT* and the MUSCOVY MUSK RAT†.

THOUGH theſe two animals have received the ſame denomination of *muſk rats*, and have ſome common characters, they ought not

* The muſk beaver has a thick blunt noſe, ſhort ears almoſt hid in the fur, and large eyes. The toes on each foot are ſeparated, the hind ones being fringed on the ſides with ſtrong hair, cloſely ſet together. The tail is compreſſed ſidewiſe, very thin at the edges, and covered with ſmall ſcales, intermixed with a few hairs. The head and body are of a reddiſh brown, and the breaſt and belly of an aſh-colour, tinged with red. The fur is very fine. The length, from noſe to tail, is one foot, and that of the tail nine inches. In the form of its body, it exactly reſembles a beaver; *Pennant's Synopſ. of Quad. p. 259.*

It is called *ondatra* by the North American ſavages; *Rat muſqué de Canada.*

Muſſaſcus; *Smith's Virginia, p. 27.*

Muſquaſk; *Joſſelyn's Voy. New England, p. 86.*

Muſk rat; *Lawſon, Carolina, p. 120.*

Caſtor zibethicus, cauda longa, compreſſo-lanceolata, pedibus fiſſis; *Linn. Syſt. Nat. p. 79.*

Caſtor cauda verticaliter plana, digitis omnibus a ſe invicem ſeparatis; *Briſſon. Quad. p. 93.*

Rat muſqué; *Charlevoix, Nov. France, p. 157. Leſcorbet N. Fr. p. 350. Mem. de l'Acad. des Sciences, année 1726, p. 323.*

† The long noſed beaver has a long ſlender noſe, like that of a ſhrew mouſe, no external ears, very ſmall eyes, and a tail compreſſed ſidewiſe. The head and back are duſky, and the belly is of a whitiſh aſh colour. The length, from noſe to tail, is ſeven inches, and that of the tail is eight inches; *Pennant's Synopſ.*

to

to be confounded. They ſhould likewiſe be diſtinguiſhed from the pilori, or muſk rat of the Antilles: They all form different ſpecies, and belong to different climates; the firſt being found in Canada, the ſecond in Lapland and Muſcovy, and the laſt in Martinico, and other of the Antilles iſlands.

The Canadian muſk rat differs from the Muſcovian, by having all its toes ſeparate, conſpicuous eyes, and a very ſhort muzzle. But the muſk rat of Muſcovy has the toes of the hind feet webbed *, very ſmall eyes, and a long muzzle, like that of the ſhrew mouſe. Both have long compreſſed tails, and differ from the muſk rat of the Antilles in this and ſeveral other characters †. The latter has a very ſhort tail,

In Sweden it is called *Deſman*.

Mus aquaticus; *Cluſi Exotic. Auct. p.* 373. *Aldrov. Quad. Digit. p.* 448. *Muſ. Wormian. p.* 334.

Muſcovy or muſk rat; *Raii Synopſ. Quad. p.* 217. *Nov. Com. Petrop. IV. p.* 373.

Caſtor cauda verticaliter plana, digitis omnibus membranis inter ſe connexis. . . . . Mus Moſchiferus; *Briſſon, Regn. Anim. p.* 135.

Caſtor moſchatus, cauda longa compreſſo-lanceolata, pedidus palmatis; *Linn. Syſt. Nat. p.* 79.

* Oculi exigui et vix conſpicui. . . . . Digiti majores membranis connexi ad commodius natandum, roſtri pars ſuperior firma, prominula, et pæne unciam longa, nigricans, eâque formâ prædita, ut inſtar ſuis aut talpæ terram vertere poſſit; *Cluſii Exotic. Auct. p.* 375.

† The muſk rats of the Antilles, called by the French *piloris*, generally burrow under ground, like the rabbits, and are nearly of the ſame ſize; but they have no reſemblance to our

tail, which is cylindrical*, like that of the common rat. But both of the former have very long tails. The head of the Canadian muſk rat reſembles that of the water rat, and the head of the Muſcovy kind reſembles that of the ſhrew mouſe.

In the Memoirs of the Academy of Sciences, ann. 1725, there is a very complete deſcription of the Canadian muſk rat. M. Sarraſin, King's phyſician at Quebec, and correſpondent of the academy, has diſſected a number of theſe animals, and made ſome ſingular remarks. By comparing his deſcription with ours, we are perſuaded that the muſk rat of Canada is the ſame animal whoſe figure is here repreſented.

The Canadian muſk rat is of the ſize of a ſmall rabbit, and of the figure of a rat. Its head is ſhort, and reſembles that of the water rat.

our large rats, except that they are white on the belly, and black or tawny on the reſt of the body. They ſmell ſo ſtrong of muſk, that their retreats are eaſily diſcovered by the perfume; *Hiſt. Nat. des Antilles, p.* 124.

* The piloris are a ſpecies of wood rats, three or four times larger than the common kind. They are almoſt white; they have a very ſhort tail; and ſmell ſtrongly of muſk; *Nouv. Voy. aux Iſles de l'Amerique, tom.* i. *p.* 438. The piloris are found in Martinico and ſome of the other Antilles. They are muſk rats, of the ſame figure with the common rat, but ſo large, that four of our rats would not weigh a ſingle pilori. . . . . They neſtle even in the huts; but are not ſo prolific as the common rat. . . . The piloris are natives of Martinico; but the common rat never appeared there till it was frequented by ſhips; *Hiſt. Gen. des Antilles, par le P. Tertre, tom.* ii. *p.* 302.

Its

Its hair is ſoft and gloſſy; and beneath the firſt hair there is a thick down, nearly reſembling that of the beaver. Like other rats, its tail is long, and covered with ſcales; but its form is different; for, inſtead of being cylindrical, it is compreſſed laterally from the middle to the extremity, and roundiſh near the origin. The toes are not united by membranes, but garniſhed with long cloſe hair, which aſſiſts the animal in ſwimming. Its ears are very ſhort, and not naked, as in the common rat, but covered, both internally and externally, with hair. The eyes are large, their aperture being about three lines. In the under jaw there are two cutting teeth, about an inch long, and two ſhorter ones in the upper. Theſe four teeth are very ſtrong, and ſerve the animal for gnawing and cutting wood.

The ſingularities obſerved in this animal by M. Sarraſin are, 1. The great muſcular force in its ſkin, which enables the creature to contract its body into a ſmall volume: 2. The ſuppleneſs of the falſe ribs, which admits this contraction, and is ſo conſiderable, that the muſk rat is enabled to paſs through holes where much ſmaller animals cannot enter: 3. The manner in which the females diſcharge their urine; for the urethra terminates not, as in other quadrupeds, under the clitoris, but at a hairy eminence above the os pubis; and in this eminence there is an aperture that allows the urine to eſcape. This ſingular organization is peculiar to a few

 ſpecies

ſpecies of animals, as the rats and apes, the females of which have three apertures. It has been remarked, that the beaver is the only quadruped whoſe urine and excrement are diſcharged by a common aperture. The female rats and apes are, perhaps, the only animals who diſcharge their urine by an aperture ſeparated from the organs of generation. But this ſingularity is confined to the females, the ſtructure of the males being the ſame with that of other quadrupeds. 4. M. Sarraſin farther remarks, that the teſticles, which, as in other rats, are ſituated on each ſide of the anus, become, in the rutting ſeaſon, very large in proportion to the ſize of the animal, their bulk being often equal to that of a nutmeg; but that, after this ſeaſon, they diminiſh ſo greatly as not to exceed a line in diameter; and that they not only undergo a change of ſize, conſiſtence, and colour, but even their ſituation is remarkably varied. In the ſame manner, after the ſeaſon of love, the ſeminal veſſels, the vaſa deferentia, and all the organs of generation, are almoſt entirely obliterated: The teſticles, which, during this period, were external and very prominent, retire within the body. They are fixed, like the other parts juſt mentioned, to the membrana adipoſa. This membrane, by the redundant nouriſhment, gradually expands and increaſes till the arrival of the rutting ſeaſon, when the organs of generation, which ſeem to be appendages of the membrane, unfold,

unfold, ſwell, and acquire their complete dimenſions. But, when the redundant nouriſhment is exhauſted by reiterated embraces, the membrane turns meager, contracts, and gradually retires toward the reins, carrying along with it the vaſa deferentia, the ſeminal veſſels, and the teſticles, which laſt become ſo light, empty, and ſhrivelled, as hardly to be diſtinguiſhable. In the ſame manner, the ſeminal veſſels, which, at the commencement of the rutting ſeaſon, are an inch and a half long, are afterwards reduced to a line or two in diameter. 5. That the follicles which contain the perfume of this animal in the form of a milky humour, and which are ſituated near the organs of generation, undergo the ſame changes. In the rutting ſeaſon, they are large and turgid, and their perfume is ſo ſtrong and highly exalted, that it is perceptible at a great diſtance. They afterwards contract, ſhrivel, and at laſt entirely diſappear. This change in the follicles, which contain the perfume, is more rapid and complete than that which happens to the organs of generation. Theſe follicles are common to both ſexes, and, in the rutting ſeaſon, contain a conſiderable quantity of milky humour, ſecreted by veſſels, which, in the male, terminate at the extremity of the penis, and towards the clitoris in the female. This ſecretion is performed, and the humour evacuated nearly at the ſame place as the urine in other quadrupeds.

All

All theſe peculiarities remarked by M. Sarraſin, were worthy the attention of ſo able an anatomiſt. In the hiſtory of the water rat, the mole, and ſhort-tailed field mouſe, we have mentioned ſimilar changes in the organs of generation. Thus we find quadrupeds, though in their general ſtructure they reſemble the other animals of the ſame claſs whoſe organs of generation are annually obliterated and renewed, nearly in the ſame manner as the milts of fiſhes, and the ſeminal veſſels of the calmar, whoſe changes, annihilation, and reproduction, have been formerly deſcribed *. Theſe ſhades by which Nature connects beings apparently the fartheſt removed from each other, theſe ſingular examples, ſhould never be neglected; becauſe they belong to the general ſyſtem of organization, and unite the moſt diſtant points of animated bodies. But this is not the place for expatiating on the general concluſions which might be drawn from theſe ſingular facts, nor on the cloſe connection they have with our theory of generation. They will be anticipated by the intelligent reader; and we ſhall ſoon have occaſion to exhibit them to greater advantage, by adding them to other facts of a ſimilar nature.

As the Canadian muſk rat belongs to the ſame country with the beaver, dwells on the water, and has nearly the ſame figure, colour, and fur, they have often been compared to each other.

* See above, vol. ii. p. 186.

It

It is even asserted, that a full grown musk rat, at first sight, may be mistaken for a beaver of a month old. They differ greatly, however, in the form of the tail, which, in the beaver, is oval and flat horizontally; but, in the musk rat, it is very long and flat, or compressed, vertically. Besides, these animals have a great resemblance in their dispositions and instincts. The musk rats, like the beavers, live in society during the winter. They make little huts, about two feet and a half in diameter, and sometimes larger, where several families associate together. It is not the object of this operation, like that of the marmots, to sleep during five or six months, but solely to shelter them from the rigour of the air. These houses, or huts, are round, and covered with a dome about a foot thick. Their materials are herbs and rushes interlaced, and cemented with earth, which they plash with their feet. They are impenetrable to rain, and furnished with steps in the inside, to prevent their being injured by inundations from the land. These huts, which serve the animals for a retreat, are covered, during winter, with several feet of snow and ice, without incommoding them. They lay not up provisions, like the beaver, but dig a kind of pits or passages under and round their habitations, to give them an opportunity of procuring water and roots. Though thus associated, they pass the winter in melancholy; for it is not the season of their amours. During all this period,

period, they are deprived of light; and, when the gentle breezes of the ſpring begin to diſſolve the ſnow, and to diſcover the tops of their habitations, the hunters open the dome, ſuddenly dazzle them with the light, and kill or ſeize all thoſe who have not had time to retire to their ſubterraneous galleries, into which they are ſtill followed; for their ſkin is valuable, and their fleſh makes tolerable good eating. Thoſe who eſcape the vigilance of the hunter quit their habitations at this time. They wander about during ſummer, but always in pairs; becauſe it is the ſeaſon of their amours. They feed upon herbs, and voraciouſly devour the freſh productions of the earth. By this redundance of excellent nouriſhment, the membrana adipoſa expands, increaſes, and is filled with fat; the follicles are alſo renewed and filled; the organs of generation unfold and ſwell; and then the animals acquire an odour of muſk, ſo ſtrong as to be hardly ſupportable. This odour is perceived at a diſtance; and, though agreeable to Europeans *, is ſo diſguſtful

* The muſk rat of North America is ſomewhat thicker and longer than our water rat. Water is its element; but it ſometimes goes upon land. It has a flat tail, from eight to ten inches long, an inch broad, and covered with ſmall black ſcales. Its ſkin is reddiſh, and the fur very fine. Near the teſticles there is a matter which has a moſt agreeable ſmell of muſk, and does not incommode thoſe to whom muſk is offenſive. In winter, when they are killed for the ſake of their fur, they have no odour; but it begins to be perceptible in ſpring, and continues ſtrong till autumn. . . . The fleſh, which has

guſtful to the ſavages, that they have denominated a river, inhabited by a vaſt number of theſe rats, the *Stinking River*.

The females bring forth annually five or ſix young. Their time of geſtation is not long; becauſe they come in ſeaſon in the beginning of ſummer, and the young are pretty large in the month of October, when they retire with their parents into the huts, which are built every year; for it has been remarked, that they never return to their old habitations. Their cry is a kind of groaning, which the hunter counterfeits, in order to make them approach him. Their fore-teeth are ſo ſtrong, and ſo proper for cutting, that, when ſhut up in a box of hard wood, they ſoon make a hole ſufficient for their eſcape, which is a faculty they have in common with the beaver. They ſwim neither ſo ſwift nor ſo long as the beaver; but often go upon the ground. They do not run well, and they walk ſtill worſe, rocking from ſide to ſide, like a gooſe. Their ſkin preſerves the ſmell of muſk, which renders their fur not ſo generally agreeable; but the down, or under hair, is uſed in the manufacturing of hats.

has no flavour of muſk, makes excellent food; *Deſcript. de l'Amer. Septent. par Denys, tom.* ii. *p.* 258.—The muſk rats of Canada diffuſe a fine odour, which is ſtronger than that of the civet or gazelle; *Voyage de Hontan, tom.* i. *p.* 95.—The American ſavages have ſuch an averſion to the odour of the muſk rat, that they give the animal the epithet of *ſtinking*; *Mem. de l'Acad. des Sciences, année* 1725, *p.* 327.

These

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These

Theſe animals are not remarkably wild, and, when taken young, are eaſily tamed. They are then very pretty; and their tail, which is long and flat, and makes their figure diſagreeable, is, at this period of life, very ſhort. They ſport with as much innocence and gentleneſs as young cats. They never bite *, and might be eaſily reared, if their odour were not diſagreeable.

The Canadian and Muſcovy muſk rats are the only northern animals which yield a perfume; for the odour of the *caſtoreum* is extremely offenſive; and it is only in warm climates that the animals which furniſh the true muſk, the civet, and other perfumes, are to be found.

The muſk rat of Muſcovy would, perhaps, exhibit to us peculiarities ſimilar to thoſe of the Canadian; but it ſeems not to have been diſſected, or examined alive by any naturaliſt. We can only mention its external form, that preſerved in the King's cabinet having been ſent from Lapland in a dry ſtate. We muſt, therefore, regret that ſo little is known of this animal.

* The muſk rats of Canada, called *ondathra* by the Hurons, eat herbs, and the pith of ruſhes about the lakes and rivers. When young, it is pleaſant to ſee them eat and perform their little gambols. I had a very pretty one, which I fed with the pith of ruſhes, and an herb ſimilar to the dandelion. They are not apt to bite; for I handled mine at pleaſure, without the ſmalleſt danger of injury; *Voyage de Sagard Theodat. p.* 322.—The plant, which M. Sarraſin ſays the muſk rat prefers to all others, is the *calamus aromaticus*.

Plate CXXXIII.

Mitchell Sculp.t

CANADIAN MUSK RAT.

Plate CXXXIV.

A Bell Sculp.t

MUSCOVY MUSKRAT.

THE MEXICAN HOG*.

OF all the animals in the New World, the Mexican hog is the moſt numerous and moſt remarkable ſpecies. At firſt ſight, he reſembles our wild boar, or rather the hog of Siam, which,

* The Mexican hog has four cutting teeth above, ſix below, and two tuſks in each jaw; thoſe in the upper jaw pointing down, and little apparent when the mouth is ſhut; the others hid. The length from the noſe to the anus, is about three feet. The head is not ſo taper as in common ſwine. The ears are ſhort and erect. The body is covered with briſtles, ſtronger than thoſe of the European kind, and more like thoſe of a hedgehog; they are duſky, ſurrounded with rings of white; thoſe on the top of the neck and back are five inches long; they grow ſhorter on the ſides. The belly is almoſt naked. From the ſhoulders to the breaſt, there is a white band. It has no tail. On the lower part of the back there is a gland, open at the top, which diſcharges a fetid, ichorous liquor, which has been miſtakenly called a *navel*; *Pennant's Synopſ. of Quad. p.* 72.

It is called *le Pecari*, or *le Sanglier Pecari*, by the French.

The wild boar called *Pecari*; *Deſmarchais, tom.* iii. *p.* 312. *Wafer's Voyage, Dampier, tom.* iii. *p.* 328. *tom.* iv. *p.* 48.

NOTA, Few animals have received ſuch a variety of names. The ſavages of Braſil call it *Tajaſſou*, according to Lery. Piſo and Marcgrave call it *Tajacu* and *Caaigoara*; Coreal *Tajouſſou*, (Voy. aux Indes Orient. tom. i. p. 173.); the Mexicans, *Quauhtla Coymatl*, *Quapizotl*, or *Coyametl*. Travellers have alſo mentioned it under different appellations. At the Bay of All Saints, according to Dampier, it is called *Pelas*; *Javari* or *Paquire* at Tabago, according to Rochefort (Relat. de l'Iſle de Tabago, p. 31.); *Paquira*, in the country of the Amazons (Jumilla, tom. ii. p. 6.); *Saino* or *Zaino*, in ſeveral places of America (Joſeph

which, as formerly remarked, is only a variety of the wild boar. In the ſame manner, the Mexican hog has been called the *boar*, or *hog of America*. He conſtitutes, however, a different ſpecies; for, from repeated trials, it has been found, that he does not intermix either with our wild or domeſtic kinds. He likewiſe differs from the hog in ſeveral eſſential characters, both external and internal. He is not ſo corpulent, and his legs are ſhorter. The form of his ſtomach and inteſtines is alſo different. He has no tail. His briſtles are much coarſer than thoſe of the wild boar. Laſtly, on his back, near the crupper, there is an orifice about three lines broad, and more than an inch deep, from which an ichorous humour, of a very diſagreeable ſmell, flows very copiouſly. No other animal has an aperture in this region of the body. The civets, the badger,

(Joſeph Acoſta, p. 196.); *Chuchie*, according to Oviedo (ſee Hernand. Hiſt. Mex. p. 649.); *Coſcui* (Voyage de Coreal, tom. i. p. 84.)

Aper Mexicanus; *Faber, apud Hernand. Hiſt. Mex. p.* 637.

Sus umbilicum in dorſo habens; *Aldrov. de Quad. Biſul. p.* 939.

Tajacu; *Piſon. Hiſt. Braſil. p.* 98. *et Marcgrav. Hiſt. Nat. Braſil. p.* 229.

Tajacu, ſeu aper Mexicanus Moſchiferus; *Raii Synopſ. Quad. p.* 97.

Sus minor umbilico in dorſo; *Cochon noir*; *Barrere Hiſt. Franc. Equin. p.* 161.

Sus tajacu, dorſo cyſtifero, cauda nulla; *Linn. Syſt. Nat. p.* 103.

Sus ecaudatus, folliculum ichoroſum in dorſo gerens; *Briſſon, Regn. Animal. p.* 111.

Mexican muſk hog; *Phil. Tranſ. Abr.* ii. 876.

and the genet have the reſervoir of their perfume under the organs of generation; and the Canadian muſk rat, and the muſk animal, have it under the belly. The liquor which iſſues from the dorſal aperture of the Mexican hog is ſecreted by a number of large glands, which are well deſcribed by M. Daubenton, and by Dr. Tyſon *. It is unneceſſary to give in detail the obſervations of theſe acute anatomiſts. It ſhall only be remarked, that Dr. Tyſon is wrong in aſſerting that this animal has three ſtomachs, or, as Mr. Ray † expreſſes it, a gizzard and two ſtomachs. M. Daubenton has clearly demonſtrated, that it has but one ſtomach divided by two ſtrangulations, which give it the appearance of three; that only one of theſe three bags has a pylorus, or aperture for allowing the deſcent of the aliment into the other inteſtines; and, conſequently, that the other two ſhould be regarded as appendages, or rather portions, of the ſame ſtomach.

The Mexican hog might be rendered domeſtic, as well as the common kind. He is nearly of the ſame diſpoſitions, feeds upon the ſame nouriſhment, and his fleſh, though drier and leſs loaded with fat, is by no means diſagreeable. It is likewiſe improved by caſtration; but, when his fleſh is intended to be eaten, not only the organs of generation, as is practiſed on the wild

* Phil. Tranſ. No. 153.

† Raii Synopſ. Quad. p. 99.

 boar,

boar, but the whole dorſal glands of both male and female, ſhould be cut off inſtantly after death; for the retention of them for a ſingle half hour gives the meat an odour ſo ſtrong as to render it uneatable.

Theſe animals are very numerous in all the warm climates of South America. They go in herds, which ſometimes amount to two or three hundred. For defending themſelves, and repelling thoſe who want to deprive them of their young, they are endowed with the ſame inſtincts as the common hog. They mutually aſſiſt each other; they ſurround their enemies, and often wound the dogs and the hunters. In their native country, they prefer the mountains to the plains. They ſearch not for marſhes and mires, like our wild boar, but remain in the foreſts, where they live upon fruits, ſeeds, and roots. They likewiſe eat ſerpents, toads, and lizards, whoſe ſkins they previouſly tear off with their feet. They produce a great number at a time, and, perhaps, more than once a-year. The young ſoon follow their mother, and never ſeparate from her till they are full grown. When taken young, they are eaſily tamed; they loſe their natural ferocity, but retain their ſtupidity; for they know no perſon, and have no attachment to thoſe who take care of them. They do no miſchief, and may be allowed to go and come at pleaſure, without any inconvenience. They never ſtray, but return home ſpontaneouſly; and

and they never quarrel, but when a number of them are preſented with victuals in the ſame trough. When angry, their grunting is ſtronger and harder than that of the common hog; but they ſeldom cry. Like the wild boar, when ſuddenly alarmed, they make a ſharp blowing kind of noiſe. Their breath is very ſtrong; and, when irritated, their hair riſes, which is ſo coarſe, that it rather reſembles the prickles of a hedge-hog than the briſtles of the wild boar.

The ſpecies of the Mexican hog is preſerved without any change; for they never intermix with thoſe hogs which were tranſported from Europe, and have become wild in America. Theſe animals often meet in the woods, and even go in company, without producing any new variety. The ſame obſervation applies to the Guiney hog, which has multiplied greatly in America, after being brought thither from Africa. The European hog, the Guiney hog, and the Mexican hog, are three ſpecies, which, though they ſeem to approach very near each other, are perfectly diſtinct, ſince they all ſubſiſt in the ſame climate, without change or intermixture. Our wild boar is the ſtrongeſt and moſt formidable of the three. The Mexican hog is equally ferocious; but he is weaker, more unwieldy, and worſe armed, his tuſks being much ſhorter than thoſe of the wild boar. The former is impatient of cold, and cannot ſubſiſt, even in our temperate climates, without being ſheltered, and

 the

the wild boar cannot ſubſiſt in very cold countries. Hence neither of theſe animals could paſs from the one Continent to the other by the lands lying toward the north pole; and, therefore, the Mexican hog cannot be regarded as the European hog altered or degenerated by the influence of the American climates, but as an animal peculiar to the ſouthern regions of the New World.

Ray, and other authors, maintain, that the liquor ſecreted by the dorſal glands of the Mexican hog, is a kind of muſk, an agreeable perfume, even when it iſſues from the body of the animal; that it is perceived at a great diſtance; and that it perfumes the places where he inhabits, or through which he paſſes. But, on the contrary, I have a thouſand times experienced, that the odour of this liquor, when it eſcapes from the animal, is ſo nauſeous, that we could neither ſmell nor collect it without extreme diſguſt. It ſeems only to become leſs fetid by drying in the air; but it never aſſumes the agreeable odour of muſk or of civet; and naturaliſts would have made a nearer approach to truth, if they had compared it to that of *caſtoreum*.

SUPPLEMENT.

M. De la Borde remarks, that, in Cayenne, there are two diſtinct ſpecies of the pecari or Mexican

Plate CXXXV.

A. Bell Sculp.

MEXICAN HOG.

Plate CXXXVI.

A. Bell Sculp!

MEXICAN HOG.

Mexican hog, which never intermix. The largeſt kind, ſays he, has white hair on its chops; and, on each ſide of the jaw, there is a round white ſpot, of the ſize of a ſmall crown-piece. The reſt of the body is black; and the animal weighs about one hundred pounds. The ſmaller ſpecies has reddiſh hair, and weighs not above ſixty pounds.

It is the large ſpecies which is here repreſented. And, with regard to the ſmaller kind, the difference of colour and ſize, mentioned by M. de la Borde, muſt be only a variety produced by age, or ſome other accidental circumſtance.

M. de la Borde, however, ſays, that the large kind runs not, like the ſmall, after dogs and men. He adds, that both ſpecies inhabit the large woods, and that they go in flocks of two or three hundred. They feed on the mountains during the rainy ſeaſon; and, when it is paſt, they frequent the low and marſhy grounds. They feed upon fruits, ſeeds, and roots, and likewiſe dig in the mires, in queſt of worms and other inſects. They are hunted without dogs, by following the track of their feet. They are eaſily ſhot; for, inſtead of flying, they aſſemble together, and often give the hunters an opportunity of charging and diſcharging ſeveral times. They purſue the dogs, and ſometimes men. He relates, that, being one day employed, along with ſeveral others, in hunting theſe animals, accompanied by a ſingle dog, which, as ſoon as

 they

they appeared, took refuge between his maſter's legs For the greater ſafety, he, with the other hunters, ſtood on a rock. They were, nevertheleſs, ſurrounded by the flock of hogs. A conſtant fire was kept up; but the creatures did not retire till a great number of them was ſlain. Theſe animals, however, he remarks, fly after they have been ſeveral times hunted. The young, when taken in the chaſe, are eaſily tamed; but they will not aſſociate or mix with the domeſtic ſpecies. In their natural ſtate of liberty, they frequent the marſhes, and often ſwim acroſs large rivers. They make great havock in the plantations. Their fleſh, ſays he, has an excellent taſte, but is not ſo tender as that of the domeſtic hog; it reſembles the fleſh of the hare, and has neither lard nor greaſe. The females bring forth only two at a litter; but they produce in all ſeaſons. When killed, the dorſal gland ſhould be inſtantly cut out, otherwiſe it will give a bad flavour to the meat.

M. de la Borde mentions another ſpecies of hog, which he calls *patira*, and is alſo found in Guiana. I ſhall tranſcribe what he remarks of this animal, ſolely with the view that he, or ſome other obſerver, may furniſh us with more preciſe information, and a more complete deſcription of it.

'The patira is of the ſize of the ſmaller ſpe-'cies of Mexican hog; and differs from it only 'by

'by having a white line along the ſpine from 'the neck to the tail.

'Theſe animals live in the large foreſts, from 'which they never depart. They aſſociate not 'in large flocks, but in families. They are, 'however, very common, and never leave their 'native country. They are hunted with or 'without dogs. When purſued by dogs, they 'ſtand firm, and defend themſelves with cou'rage. They take refuge in hollow trees, or in 'holes of the earth dug by the armadillos. Theſe 'holes they enter backwards, and remain as long 'as they can: But, when highly irritated, they 'inſtantly iſſue out in a body. In order to ſeize 'them as they come out, the hole is incloſed 'with branches of trees; one of the hunters, 'armed with a pitchfork, ſtands above the hole, 'to fix them by the neck, while another forces 'them out, and kills them with a ſabre.

'When there is but one in a hole, and the 'hunter has not leiſure to ſeize it, he ſhuts up 'the entrance, and is ſure of his game next day. 'The fleſh of the patira is ſuperior to that of 'other hogs. When taken young, they are 'eaſily tamed; but they have a mortal antipathy 'to dogs, whom they perpetually attack. The 'females bring forth only two at a time; and 'they are fit for procreating in every ſeaſon of 'the year. They keep always in the marſhes, 'unleſs when totally covered with water.

 'The

'The hair of the patira is not ſo hard as that
'of the wild boar, or domeſtic hog, but is ſoft
'and flexible like that of the pecari. The patira,
'when tamed, follows his maſter, and allows
'himſelf to be handled by thoſe with whom he
'is acquainted; but ſtrangers he threatens with
'his head and teeth.'

The TERNAT BAT*, the leſſer TERNAT BAT†, and the VAMPIRE, or SPECTRE‡.

THOUGH the two Ternat bats appear to be diſtinct ſpecies, we have placed them together, becauſe of their great reſemblance; for they differ only in magnitude and colour. The larger,

* The bats, or winged quadrupeds, are diſtinguiſhed from all other animals, by having long toes on the fore-feet, connected by thin broad membranes, extending to the hind-legs.

The great or Ternat bat has large canine teeth, four cutting teeth above, and an equal number below, a ſharp black noſe, and large naked ears. The tongue is pointed, and terminated by ſharp aculeated papillæ. The exterior toe is detached from the membrane, and the claw is ſtrong and hooked. There are five toes on the hind-feet; the talons are very crooked, ſtrong, and compreſſed ſidewiſe. It has no tail; the membrane is divided behind quite to the rump. The head is of a dark ferruginous colour: On the neck, ſhoulders, and underſide, the red is much lighter and brighter. On the back, the hair is ſhorter, duſky and ſmooth. The membranes of the wings are duſky. They vary in colour; ſome are entirely of a reddiſh brown, others duſky. This now deſcribed was one foot long, and the extent of the wings, from tip to tip, was four feet. But they are found vaſtly larger; *Pennant's Synopſ. of Quad. p.* 359.

La Rouſſette, vulgairement le Chien-Volant.

Veſpertilio ingens; *Cluſii Exot. p.* 94.

Veſpertilio; *Geſn. Hiſt. Avium. p.* 772.

Canis volans Ternatanus orientalis; *Seba, vol.* i. *p.* 91. *tab.* 57. *fig.* 1, 2.

Veſpertilio vampyrus, naſo ſimolici, membrana inter femora diviſa; *Linn. Syſt. Nat. p.* 46.

Veſpertilio

larger, whoſe hair is of a reddiſh brown colour, is nine inches long from the end of the muzzle to the

Veſpertilio cynocephalus Ternatanus; *Klein. Quad. p.* 61.

Pteropus rufus aut niger, auriculis brevibus acutiuſculis; *Briſſon. Quad. p.* 153, 154. No. 2.

The great bat from Madagaſcar; *Edw. Hiſt. of Birds, part* iv. *p.* 180.

† La Rougette; Le chien-volant a col rouge.

Pteropus fuſcus, auriculis brevibus acutiuſculis, collo ſuperiore rubro. La Rouſſette a col rouge; *Briſſon. Regn. Anim. p.* 154.

Note, M. Briſſon has ſeparated with propriety the Ternat bats from the common bat. Linnæus is wrong, when he ſays, that all bats have four cutting teeth in each jaw. This character is true in the Ternat bats; but the common bats have four cutting teeth in the upper jaw, and *ſix* in the under; and, conſequently, according to Linnæus's method of claſſing by the number and arrangement of the teeth, theſe animals cannot belong to the ſame genus.

‡ The vampire or ſpectre has a long noſe, large teeth, and long, broad, upright ears. At the end of the noſe there is a long conic erect membrane, bending at the end, and flexible. The hair on the body is cinereous, and pretty long. The wings are full of ramified fibres. The membrane extends from hind leg to hind leg. It has no tail; but from the rump extend three tendons, terminating at the edge of the membrane. By Seba's figure, the extent of the wings is two feet two inches, and from the end of the noſe to the rump, ſeven inches and a half; *Pennant's Synopſ. of Quad. p.* 363.

The ſpectre is an American animal, mentioned under the vague names of the *great American bat,* or *the flying dog of New Spain.*

Canis volans maximus, auritus, ex Nova Hiſpania; *Seba, vol.* i. *p.* 92. *tab.* 58. *fig.* 1.

Veſpertilio cynocephalus maximus, auritus, ex Nova Hiſpania; *Klein. Quad. p.* 62.

Veſpertilio ſpectrum, ecaudatus, naſo infundibuliformi lanceolato; *Linn. Syſt. Nat. p.* 46.

Pteropus auriculis longis, patulis, naſo membrana antrorſum inflexa aucto; *Briſſon. Regn. Anim. p.* 154.

Andira

the extremity of the body; and the wings, when extended, are three feet from tip to tip; and the leſſer, whoſe hair is of a cinereous brown colour, exceeds not five and a half inches in length, and the wings extend not above two feet; and it has on the neck a half-collar of a lively red, mixed with orange, of which there is no veſtige in the larger kind. Both belong nearly to the ſame warm climates of the Old World, being found in Madagaſcar *, Mauritius, Ternat, the Philippines, and other iſlands of the Indian Archipelago, where they ſeem to be more common than on the adjacent Continents.

In the warm countries of the New World, there is another flying quadruped, the American name of which we have not learned. We ſhall call it *vampire*, becauſe it ſucks the blood of men and other animals when aſleep, without occaſioning pain ſufficient to waken them. This American animal is of a different ſpecies from the two Ternat bats, both of which are peculiar to Africa and the South of Aſia. The vampire is ſmaller than either of the Ternat bats. The firſt, when it flies, appears to be of the ſize of a pigeon; the leſſer Ternat bat is of the ſize

Andira guacu, verſpertilio cornutus; *Piſo, Braſil. p.* 190. *Marcgrave, Braſil. p.* 213.

* In the Iſland of Madagaſcar, &c. the bats are as large as hens, and ſo numerous that they frequently darken the air. Their cry is frightful; *Voyage de Madagaſcar, par de V. p.* 83. 245.

of

of a crow, and the largeſt is as big as a large hen. Both Ternat bats have well formed heads, ſhort ears, and rounded muzzles, nearly reſembling that of a dog. The muzzle of the vampire, on the contrary, is longer; its aſpect is equally hideous as that of the moſt ugly bats; its head is ill ſhaped; and its ears are large, open, and very erect. It has a deformed noſe, the noſtrils being of the ſhape of a funnel, with a membrane above them, which is elevated like a horn or painted creſt, and adds greatly to the deformity of its countenance. Hence it is apparent, that this ſpecies is totally different from the Ternat bats. The vampire is not more remarkable for its deformity than its miſchief. Of this we have the recent and authentic teſtimony of M. de la Condamine: 'The bats,' ſays he, 'which ſuck the blood of horſes, mules, and 'even of men, if they do not ſleep under the 'ſhelter of a houſe or tent, are a common ſcourge 'to moſt of the warm countries of America. 'Some of them are of a monſtrous ſize. At 'Borja, and ſeveral other places, they have entirely deſtroyed the cattle which had been introduced there by the miſſionaries, and begun 'to multiply *.' Theſe facts are confirmed by ſeveral other hiſtorians and travellers. P. Martyr †, who wrote ſoon after the conqueſt of South

* Voyage de la Riviere des Amazones, par M. de la Condamine, p. 171.

† In Dariene, novi orbis regione, Hiſpani noctu veſpertilionum morſibus

South America, ſays, that, in the Iſthmus of Darien, there are bats which ſuck the blood of men and cattle, when aſleep, to ſuch a degree as to weaken and even kill them. This fact is likewiſe affirmed by Jumilla*, as well as Don George Juan, and Don Antoine de Ulloa †. Though it appears, from theſe authorities, that the blood-ſucking bats are very common in all South America, we have never hitherto been able to procure a ſingle individual. But Seba has given a figure and deſcription of this animal, whoſe noſe is ſo extraordinary, that it is ſurpriſing ſuch a conſpicuous deformity ſhould not have been taken notice of by travellers. The

morſibus torquebantur, quæ ſi dormientem forte momorderint quempiam, exhauſto ſanguine trahunt in vitæ diſcrimen, et mortuos fuiſſe nonnullos ex ea tabe compertum eſt; *Petrus Martyr*, Oceani decadis tertiæ lib. 6.

* In South America, the bats are incredibly troubleſome. There are two kinds, one of the ſize of thoſe we ſee in Spain; the other ſo large, that the wings extend three quarters of a yard. Both are dexterous blood ſuckers, and fly about during the night in queſt of men and cattle. If thoſe who are obliged to ſleep on the ground do not cover themſelves from head to foot, which is very inconvenient in theſe warm regions, they are certain of being pierced by the bats. With regard to thoſe who ſleep in houſes, with their front only uncovered, they are infallibly bit; and, if theſe animals ſtrike a vein, the unfortunate perſon often paſſes inſenſibly from ſleep to death by the loſs of blood, ſo ſubtile is the wound inflicted: Beſides, by fanning the air with their wings, they refreſh the ſleeper whom they mean to deprive of life; *Hiſt. Nat. de l'Orenoque, par le Père Jumilla*, *tom.* iii. *p.* 100.

† Bats are very numerous at Carthagena; they bleed the inhabitants ſo dexterouſly, and without wakening them, as to enfeeble them extremely; *Biblioth. Raiſonée, tom.* xliv. *p.* 409.

 ſtrange

ſtrange animal deſcribed by Seba, may not be the vampire or blood-ſucker. Seba's figure may be erroneous; and the deformed noſe may be only an accidental monſtroſity, though there are examples of ſimilar and permanent deformities in other ſpecies of bats. Time alone can remove theſe uncertainties.

Both the Ternat bats are in the Royal cabinet, and were brought from the Iſle of Bourbon. They are peculiar to the Old Continent, and are no where ſo numerous in Africa and Aſia, as the vampire is in America. Theſe animals are larger, ſtronger, and perhaps more miſchievous than the vampire. But their deſtruction is executed by open force, both during the day and the night. They kill poultry and ſmall birds: They attack men, and often wound them in the face. But no traveller mentions their ſucking the blood of men or cattle, when aſleep.

The ancients had an imperfect knowledge of theſe winged quadrupeds, which are a kind of monſters; and it is probable, that, from ſuch whimſical models of nature, they had conceived the idea of harpies. The wings, the teeth, the claws, the cruelty, the voracity, the filthineſs, and every other deformity and deſtructive quality aſcribed to the harpies, correſpond very well with our Ternat bats. Herodotus * appears

* Herodot. lib. iii. It is ſingular, that Pliny, who has related ſo many marvellous ſtories, ſhould here accuſe Herodotus

pears to point them out, when he ſays, that there were large bats which were extremely troubleſome to the people who gather caſſia around the marſhes of Aſia; and that they were obliged to cover their bodies and faces with leather, to defend themſelves againſt the dangerous bites of theſe animals. Strabo * ſpeaks of large bats in Meſopotamia, whoſe fleſh made good eating. Among the moderns, Albertus, Iſidorus, and Scaliger, mention theſe large bats in a vague manner. Linſcot, Nicolas Matthias †, and Francis Pyrard ‡ have made more particular mention of them; and Oliger Jacobeus ‖ has given a ſhort deſcription, and a figure of them. Laſtly,

dotus of falſhood, and treat the fact of bats attacking men, as a mere fable of antiquity.

* In Meſopotamia, inter Euphratis converſiones, eſt maxima verſpertilionum multitudo, qui longe majores ſunt quam in cæteris locis. Capiuntur, et in eſum condiuntur; *Strabo, lib.* xvi.

† Nicolus Matthias, in a work printed at Viſurgbourg, in Sweden, ſays, p. 123. that theſe large bats fly in flocks during the night; that they drink the juice of the palm-trees in ſuch quantities as render them intoxicated, and make them fall, as if they were dead, at the roots of the trees; that he ſeized one in this condition, and having nailed it to a wall, it gnawed and rounded the nails with its teeth, as if they had been filed. He adds, that its muzzle reſembles that of a fox.

‡ In the iſland of St. Lawrence and in the Maldiva iſlands, there are bats as large as crows; *Voyage de Pyrard, tom.* i. *p.* 38. 132.—In Malabar, the bats fly at noon day; they are as large as cats, and people eat them without reluctance; *Biblioth. Raiſonée, tom.* xxxii. *p.* 194.

‖ There are two of theſe bats in the *Muſeum Regium Haffniæ,* 1696, *p.* 12. *tab.* 5. *fig.* 3. He ſays, that each of them were

Laſtly, deſcriptions and good figures of theſe animals, which correſpond with our ſpecimens, are to be found in Seba and Edwards.

The Ternat bats are carnivorous animals, and ſo voracious, that they eat every thing; for, when fleſh or fiſh fail them, they feed upon vegetables, and fruits of all kinds*. They drink the juice of the palm-tree; and it is eaſy to intoxicate and ſeize them, by placing near their retreats veſſels filled with palm-water, or ſome other fermented liquor. They attach and ſuſpend themſelves to the trees by their claws. They generally fly in flocks, and more frequently in the night than the day. They avoid places frequented by men, and dwell in the deſerts, particularly in uninhabited iſlands. They copulate with ardour. The ſex in the male is

were of the ſize of a large crow; that they were a foot long; and that the length of the penis was two inches. He adds, after Linſcot, that they were eaten by the Indians, who thought them as delicate as partridges.

* In the Manilla iſlands, we find an infinity of large bats hanging attached to each other upon the trees. They take flight in the evening, and go in queſt of food to the diſtant woods. They ſometimes fly in ſuch numbers, and ſo cloſe, that they darken the air with their wings, which are often ſix palms in extent. They know how to diſtinguiſh, in the thickeſt woods, the trees which bear ripe fruit. Theſe they devour, during the night, making a noiſe that may be heard at the diſtance of two miles, and return at day-break to their retreats. The Indians, who ſee theſe animals eating their beſt fruits, make war againſt them, not only to gratify revenge, but to feed upon their fleſh, which they ſay taſtes like that of a rabbit; *Hiſt. Gen. des Voyages, par M. l'Abbé Prevoſt, tom.* x. *p.* 389.

very

very conſpicuous. The penis is not concealed in a ſheath, like that of quadrupeds, but hangs out of the body, like that of the monkey *. The ſex of the females is alſo very apparent. They have only two paps placed on the breaſt, and they produce few at a litter, but oftener than once a-year. The fleſh of theſe animals, when young, is not bad to eat; the Indians compare the taſte of it to that of a partridge or rabbit.

All travellers through America agree, that the large bats of the New Continent have the faculty of ſucking the blood of ſleeping men and cattle, without wakening them. The travellers into Aſia or Africa, who mention the Ternat bats, take no notice of this ſingular fact. Their ſilence, however, amounts not to a complete proof, eſpecially as theſe creatures have ſo many other reſemblances to the American vampires. We therefore thought it worthy of examination, whether the Ternat bats (for we have not been able to procure the tongue of a vampire), could poſſibly ſuck blood, without occaſioning a pain ſufficient to waken a ſleeping perſon. If they cut the fleſh with their teeth, which are as large as thoſe of other quadrupeds of the ſame ſize, a man in the moſt profound

* In hoc animali uterque ſexus dignoſcebatur: Nam eorum aliqui, qui mihi conſpecti ſunt, ſatis longum exertumque penem habebant, quales fere ſimiarum eſt; *Carol. Cluſii Exotic. tom.* ii. *p.* 94.

 ſleep,

ſleep, and particularly cattle, whoſe ſleep is leſs profound, would be inſtantly rouſed by the pain. The ſame thing would happen, if the wound was made by their claws. Hence it muſt be with their tongue alone that they are enabled to make ſuch ſmall apertures in the ſkin as to permit the blood to be extracted from the veins, without occaſioning a great degree of pain. Upon examination, M. Daubenton diſcovered that the tongue of the Ternat bats was pointed, and armed with very hard, minute, ſharp papillæ, which are bended backwards: Theſe may be inſinuated into the pores of the ſkin, and penetrate ſo far as to make a ſtream of blood flow by the conſtant ſuction of the tongue. But it is fruitleſs to reaſon upon a fact, all the circumſtances of which are not underſtood, and ſome of them, perhaps, exaggerated or unſkilfully related.

SUPPLEMENT.

I Find, from a note communicated by M. Commerſon, that he had ſeen, in the iſle of Bourbon, millions of theſe large or Ternat bats, which, in the evenings, fly in flocks like crows, and perch upon trees, particularly the *vaccoua*, to eat the fruit. He adds, that, when taken young,

young, they make good food, the taſte of the fleſh reſembling that of the hare, and being equally black.

The late M. de la Nux, ſince the publication of my work, ſent me, from the ſame iſland, ſome excellent remarks upon what I had written concerning theſe animals. His letter, of which the following are extracts, is dated October 24, 1772:

'In your letter of the 8th March 1770, you 'declare that you are equally happy to be in- 'formed of truth, or to have your own errors 'corrected, and invite me to communicate my 'thoughts and remarks with the utmoſt free- 'dom. I accept of the invitation, and am only 'afraid leſt I ſhould tire you by prolixity. With 'regard to the great or Ternat bats, to combat 'errors which have been long received, requires 'a variety of evidence. Theſe animals, it would 'appear, have only been examined with the 'eye of fear: They have been regarded as ugly 'and monſtrous; and, therefore, without far- 'ther examination than a bare inſpection of 'their figure, they have received a character, 'manners, and habits, which do not belong to 'them; as if miſchievouſneſs, ferocity, and 'dirtineſs, were inſeparable from uglineſs of 'aſpect.'

M. de la Nux remarks, that, in my deſcription, p. 283. both the ſize and number of the great Ternat bats are exaggerated; that there

 is

is nothing frightful in their cry; that it reſembles the hoarſe noiſe made by a man when he opens his mouth, contracts the wind-pipe, and makes ſeveral forcible expirations and reſpirations; and that, when theſe animals are at reſt on a tree, they make a gentle kind of murmuring, which is not diſagreeable.

'P. 61. Pliny with reaſon,' continues our author, 'treats the narrative of Herodotus as 'fabulous. The Ternat bats, at leaſt in the 'iſlands, inſtead of attacking men, uniformly 'avoid men. They bite cruelly, but only 'when defending themſelves from blows, or 'when they are ſeized; ſo that, whoever is 'wounded by them, muſt aſcribe his misfor-'tune to his own want of addreſs, and not to 'the ferocity of an animal that has no ſuch 'quality.

'P. 286, 287. Notes. Here the ſize of the 'great Ternat bat approaches nearer to the 'truth. . . . . *In Malabar, the bats fly at 'noon-day.* This is true of the larger, but not 'of the leſſer Ternat bats. The former fly not 'in troops during the day, but ſingly, when they 'mount very high, which greatly diminiſhes 'their apparent magnitude. They fly long 'without ſtopping, and I believe that they can 'paſs from the iſle of Bourbon to the iſle of 'France, a diſtance of at leaſt thirty leagues, in 'a very ſhort time. They never hover, like 'birds of prey. But, in the great elevation of

'perhaps

'perhaps two hundred fathoms above the ſur-
'face of the earth, the motion of their wings,
'which is rapid when near the ground, appears
'to be very ſlow.

'Strictly ſpeaking, the great Ternat bats live not in ſociety. When in queſt of food, they unite into flocks or companies more or leſs numerous. Theſe companies aſſociate by accident upon the trees whoſe flowers or fruits are agreeable to their palates. They may be obſerved arriving ſucceſſively, and laying hold of the trees by the claws of their hind feet, where they reſt for a long time, if not diſturbed. There are always ſome, however, which detach themſelves from time to time, and join the company. But, when a bird of prey paſſes above the tree, when they hear the noiſe of thunder, or of a muſket, or when they ſpy any perſon in their neighbourhood, they all take wing at once. It is on ſuch occaſions that they are ſeen, during the day, flying in companies, which, though numerous, never obſcure the air, becauſe they cannot fly cloſe enough to produce this effect: The expreſſion is at leaſt hyperbolical. But to ſay, that *an infinity of large bats may be ſeen attached to each other upon the trees*, is not only falſe, but abſurd. They are too peeviſh to hold each other, in this manner, by the hand; and, if we examine their figure, the impoſſibility of ſuch a concatenation will be apparent. They reſt 'on

'on the branches above, below, or at each 'other's ſides; but always remain ſeparate.

'With regard to the leſſer Ternat bats, they 'never fly in the day: They live in ſociety, to 'the number ſometimes of more than four hun- 'dred, in the hollow trunks of large corrupted 'trees, from which they depart not till the duſk 'of the evening, and return before day-break. It 'is firmly believed in this iſland, that, whatever 'numbers theſe ſocieties conſiſt of, there is never 'more than one male found among them: But I 'cannot atteſt this fact. I ſhall only remark, that 'theſe ſedentary animals acquire a great degree 'of fatneſs, and that, when this colony was firſt 'eſtabliſhed, many people, whoſe taſte and ſto- 'mach were not too nice, collected vaſt quan- 'tities of bat greaſe for food. I have ſeen the 'time when a *tree of bats*, as it is termed, was no 'inconſiderable treaſure. It is eaſy to ſhut up 'the entrance of their retreats, to take them out 'alive one by one, or to ſuffocate them with 'ſmoke, and in either way to aſcertain the num- 'ber of males and females of which the ſociety 'is compoſed. I know nothing more of this 'ſpecies. I return to the notes. . . . . Another 'hyperbole: p. 288. *They know how to diſtinguiſh, 'in the thickeſt woods, the trees which bear ripe 'fruit. Theſe they devour during the night, 'making a noiſe that may be heard at the diſtance 'of two miles.* . . . . In reading this paſſage, we 'are led to aſcribe the noiſe to the act of maſti-

'cation.

'cation. The noiſe that is heard at a great diſ-'tance, both in the night and the day, is that 'which is natural to the animals when in a paſ-'ſion, and when diſputing about their food; for 'it muſt not be imagined that the large Ternat 'bats eat during the night only. They have a 'fine eye, as well as an acute ſcent. They ſee 'very well in the day; and it is not ſurpriſing 'that they ſhould diſtinguiſh, in the woods, ripe 'fruit and grain as well as flowers. Beſides, 'the bananas of every kind, of which they are 'very fond, the peaches and other fruits cultiva-'ted by the Indians, are not in the thickeſt parts 'of the woods. . . . . *The fleſh of theſe animals*, 'p. 289. *is not bad*. . . . True, if the reluctance 'excited by their figure could be overcome. 'When about five months old, they are fat, and 'as good of their kind as the Guiney hen, or 'young wild boar; but, when old, they are hard, 'though pretty fat during the fruit-ſeaſon, which 'continues all the ſummer and a part of autumn. 'The males, eſpecially when aged, acquire a 'ſtrong, diſagreeable flavour. . . . . Neither is it 'correct to ſay, in general, that theſe animals '*are eaten by the Indians*. It is well known, 'that the Indian neither eats nor kills any ani-'mal. Perhaps they are eaten by the Moors and 'Malayans. It is certain, that many Euro-'peans eat them. Hence it is true, that bats 'are eaten in India, though not by the Indians. 'In this iſland, both ſpecies are eaten.

 'After

'After this examination, I proceed to the hiſ-
'tory of theſe animals, which likewiſe requires
'to be rectified. My proofs ſhall be drawn ſole-
'ly from my own obſervation, and from what
'has been alledged by thoſe writers whom our
'Hiſtorian of Nature has followed.

'Both the great and leſſer Ternat bats are
'natives of the iſles of France, of Bourbon,
'and of Madagaſcar. I have reſided in the iſle
'of Bourbon upwards of fifty years. When I
'arrived in the month of September 1722, theſe
'animals were very common in diſtricts already
'ſettled, where they are now become rare. The
'reaſons are obvious: 1. The foreſts were then
'at no great diſtance from the ſettlements; and
'they cannot ſubſiſt but in foreſts. 2. The great
'Ternat bats are viviparous, and bring forth one
'young only each year. 3. For the ſake of their
'fleſh and their greaſe, they are hunted, during
'the whole ſummer, autumn, and part of winter,
'by the Whites with muſkets, and by the Ne-
'groes with nets. Beſides theſe cauſes of dimi-
'nution in the ſpecies, they abandon the neigh-
'bourhood of our ſettlements, and retire into the
'interior parts of the iſland, where they are ex-
'poſed to conſtant deſtruction by the cheſnut-
'coloured Negroes.

'The ſeaſon of their amours here is in the
'month of May, which is about the middle of
'our autumn, and the females bring forth a
'month after the vernal equinox. Hence the

'time

'time of their geftation is from four and a half 'to five months. Of the precife time the young 'take in acquiring their full growth, I have no 'knowledge: But I know that they appear to 'be perfect at the winter folftice, which is nearly 'eight months from their birth. Befides, no 'fmall bats are feen, except in April and May, 'when the old are eafily diftinguifhed from the 'young, by the more vivid colour of the latter. 'The old ones become gray, though I know not 'at what period; and it is then that their flefh 'is hard, and has fo ftrong and difagreeable a 'flavour, that the fat alone, with which they are 'well provided from the end of fpring to the be-'ginning of winter, is eaten by the Negroes.

'It is certain, that thefe animals feed upon no 'kinds of flefh, but folely on bananas, peaches, 'and other fruits, which our forefts produce 'abundantly in different feafons. They are like-'wife very fond of the juices of certain umbel-'lated flowers, particularly thofe of our ftinking 'tree, the nectarium of which is very fhort. 'Thefe flowers abound in January and February, 'which is the middle of our fummer, and allure 'into the lower parts of the ifland vaft numbers 'of bats; and, it is probable, for the purpofe of 'fucking the nectaria of umbellated flowers of 'different fpecies, that their tongue is furnifhed 'with fo many fharp papillæ. The fkin of the 'mango fruit is refinous, and is never touched 'by the bats. When confined in a cage, they 'have

'have been made to eat bread, ſugar-canes, &c. 'I know not, however, whether they were made 'to eat fleſh either raw or roaſted. But ſuppoſ- 'ing they had, it is not in a ſtate of ſlavery that 'I am conſidering them; for bondage changes 'the manners, characters, and habits of all ani- 'mals. Man has nothing to apprehend from 'theſe bats, either perſonally, or for his poultry. 'It is impoſſible for them to ſeize even the ſmal- 'leſt bird. They cannot, like a falcon, ſtoop 'down upon their prey. If they approach too 'near the ground, they fall down, and are in- 'capable of reſuming their flight till they climb 'upon any elevated object they firſt meet with, 'ſuppoſing it ſhould be the body of a man*. 'When on the ground, they trail their bodies 'ſlowly along, and make their ſtay in that ſitua- 'tion as ſhort as poſſible. As they are by no 'means adapted for running, how is it practi- 'cable for them to ſeize birds on the branches 'of trees? The ſlow and awkward manner in 'which they move towards the end of a branch, 'in order to catch the wind in their wings, 'ſhows that every attempt of this nature would 'be abortive. When about to fly, theſe animals 'cannot, like birds, dart at once into the air.

* I ſaw a young Ternat bat fly into my houſe in the duſk of the evening, and fall down at the feet of a Negreſs about eight years of age. It inſtantly began to climb up the child's body, who was luckily very near me. I quickly relieved her, leſt the claws of its wings ſhould have ſcratched her ſhoulders or face.

'To

' To disengage their claws from the place to ' which they are attached, they are obliged to ' beat the air several times with their wings; and, ' however full their wings may be when they ' quit their station, their weight is apt to make ' them sink. In order to raise themselves, they ' traverse the concavity of a curve line. But the ' place from which they depart is not always ' commodious for the free play of their wings. ' They may be restrained by the vicinity of ' branches; and, when thus situated, they pro- ' ceed to the part of the branch from which they ' can take wing without any risk. It frequently ' happens, that, when a numerous flock rest upon ' trees of twenty or thirty feet high, and are sur- ' prised by a peal of thunder, or the firing of a ' gun, several of them fall to the ground before ' they receive a sufficient quantity of air to sup- ' port them. In this case, they instantly climb ' the first tree they meet with, in order to resume ' their flight as soon as possible. Let us suppose ' that a traveller, hunting animals of which he ' has no knowledge, whose figure and aspect ' strike him with terror, is suddenly surrounded ' with a number of large bats; that he is en- ' tangled by one or two of them climbing up his ' body; that, by roughly endeavouring to disen- ' gage himself, he irritates the animals, and is ' scratched, or even bit by them; would not a ' scene of this kind give rise to the notion, that ' these bats were ferocious, rushing upon men,

' in

'in order to wound or devour them, while the 'whole affair is only a fortuitous rencounter of 'animals of different ſpecies, who are equally 'afraid of each other? I ſay more: The foreſt is 'abſolutely neceſſary to the exiſtence of theſe 'bats, to which they are led by the inſtinct of 'ſelf-preſervation, and not by any ſavage or 'ferocious diſpoſition. When to all theſe facts 'I add, that neither the great nor leſſer Ternat 'bats ever fix upon carrion, and that naturally 'they do not eat upon the ground, but require 'to be in a hanging poſture when they feed, I 'think I have ſaid enough to eradicate the pre-'judice which repreſents them as carnivorous, 'voracious, deſtructive, and cruel animals. When 'I farther add, that their flight is as heavy and 'noiſy, eſpecially when near the ground, as that 'of the vampire ought to be light and ſilent, I 'ſhall have, by this laſt character, removed the 'one ſpecies to a conſiderable diſtance from the 'other.

'Becauſe the great Ternat bats are ſometimes 'obſerved flying near the ſurface of the water, 'like the ſwallow, they have been repreſented as 'feeding upon fiſh. But this fleſh is equally 'diſagreeable to them as all other kinds; for, I 'repeat it, that they live entirely on vegetables. 'It is ſolely for the purpoſe of bathing that they 'frequent the waters; and, if they fly nearer the 'ſurface of the water than the earth, it is owing 'to the fewer interruptions preſented by the

'former

'former to the motion of their wings. To this 'circumftance the natural cleanlinefs of thefe 'animals muft be afcribed. I have feen, and I 'have killed numbers, and never difcovered the 'fmalleft degree of dirtinefs upon any of them.

'The great bat is by no means a beautiful 'animal. When feen nigh, its movements are 'all difagreeable. There is only one point of 'view, a fingle attitude, in which all its natural 'deformity difappears, and in which it may be 'obferved with pleafure. When perched on a 'tree, it hangs with its head down, and its 'wings folded, and placed exactly on each fide 'of the body. In this fituation, the vibrating 'wings which conftitute its deformity, as well 'as the hind paws, by the claws of which it is 'fufpended, are concealed. We fee only a 'roundifh, plump, pendulous body, covered 'with deep brown hair extremely clean and 'fmooth, terminated by a head whofe phyfiog'nomy is vivacious, and by no means difagree'able. This is their only attitude of repofe, in 'which they remain a long time during the 'day. They are feen to beft advantage at an 'elevation above the earth from forty to fixty 'feet, and at the diftance of about one hundred 'and fifty feet. Now, figure to yourfelf a 'large tree, whofe branches are garnifhed with 'one hundred and fifty or two hundred of fuch 'objects, having no other motion but what is 'communicated to them by the branches, and

'you

'you will have an idea of a picture, which I 'have regarded as curious, and contemplated 'with pleaſure. In the richeſt cabinets of na-'tural hiſtory, the great Ternat bat is always 'ſhown with its wings fully extended, which 'is its moſt ugly attitude. This poſition may 'anſwer one purpoſe. But ſome of them ought 'to be viewed at a ſide, or from above, in their 'natural ſtate of repoſe. The one repreſented 'in your work is not juſt; for theſe animals 'never reſt on the ground with their four feet.

'I ſhall finiſh my notes, by remarking, that 'both ſpecies afford a wholeſome nouriſhment; 'for, though their fleſh is often devoured to ex-'ceſs, it was never known to be hurtful. Neither 'ſhould this fact excite ſurpriſe, when it is con-'ſidered that theſe animals feed entirely on ripe 'fruits, the juices, flowers, and perhaps the exu-'dations of a number of trees. The laſt I was 'induced to believe from a paſſage in Herodotus. 'But I have not been able to aſcertain the truth 'of it by actual obſervation.'

THE SENEGAL BAT*.

THE Count de Buffon's deſcription of this bat is preciſely the ſame with that given in the note.

* This bat has a long head; the noſe is a little pointed; the ears are ſhort and pointed; the head and body are of a tawny brown mixed with aſh-colour; the body is paler: the two

note. The author adds, that this animal has twenty-eight teeth, two incisive in the upper jaw, six in the under, and two canine and eight grinders in each jaw. The upper cutting teeth are thick, long, and sharp, and distant from one another about a line and a half, and the under ones are furnished with lobes *.

This bat was brought from Senegal by M. Adamson of the Royal Academy of Sciences.

THE BULL-DOG BAT †.

THE muzzle of this bat is very thick, the lips long, and the nose well formed. The ears are broad and round, their edges touching each other under the front; they have a fold forward, which extends from the auditory canal to the edge of the concha, two lines distant from the place where the two ears touch each other, and there is a concavity on the internal face of the concha on each side of the fold. The crown and hind part of the head, the top and sides of the neck, the shoulders, the back, and the

two last joints of the tail extend beyond the membrane; its length, from nose to rump, is above four inches, and the extent of the wings twenty-one inches; the membrane of the wings and tail is black; *Pennant's Synops. of Quad. p.* 366.

Chauve-souris étrangere; *Buffon.*

* The principal characters of this bat are described in the Memoirs of the Royal Academy of Sciences, ann. 1759, under the name of the *Marmotte volante*.

† Pennant's Synops. p. 366.

crupper,

crupper, are of a browniſh aſh-colour. The middle of the belly is brown; the remainder of the belly, the cheſt, and the throat, are aſh-coloured, without any mixture of brown. The membrane of the wings and tail is of a blackiſh brown colour. The fore-legs and toes are cinereous. From the membrane there iſſues a portion of the tail of ſeven lines long, which is compoſed of five falſe vertebræ. The length of the body, from the end of the muzzle to the anus, is two inches.

This animal has twenty-ſix teeth, two inciſive, two canine, and eight grinders in the upper jaw, and, in the under jaw, two inciſive, two canine, and ten grinders *.

* * * * * *

There is another bat, which ſeems to be of the ſame ſpecies with the preceding, though it differs in ſome articles. It is ſmaller, being only one inch eight lines in length. The head is not ſo plump, and, of courſe, the muzzle is thinner, and the noſe ſtill better ſhaped. The whole upper part of the body is yellow, mixed with a tinge of cinereous. The under part is of a dirty white, inclining to a yellowiſh aſh-colour. The membrane of the wings and tail is a mixture of brown and yellow.

* This bat is taken notice of in the Memoirs of the Royal Academy of Sciences, ann. 1759, under the name of the *Mulot-volant*.

THE

THE BEARDED BAT*.

THIS bat has a head of a very ſingular conſtruction. The noſe has hardly any cartilage, and the front is much ſunk. The noſtrils are not ſeparated, as in moſt animals, by a partition, but each of them is placed on the ſide of a ſmall gutter, which is open above from one end to the other. The internal edge of this gutter is very ſmall; the external is larger, and terminates in a ſmall button. The external edges of the two gutters unite above the upper lip, and form the extremity of a large furrow, which extends from the upper lip to the front, where there is a deep naked hole, the borders of which are covered with long hair. The ears are long and narrow. The hair of the head, except that of the top, throat, breaſt, and belly, is whitiſh, with a tincture of yellow. The hair on the top and hind part of the head, the neck, ſhoulders, back, and rump, is of a reddiſh brown. The length of the longeſt hairs is four lines and a half. The ears and the membrane of the wings and tail have different tinctures of blackiſh and reddiſh brown. The tail is incloſed in the membrane to the very extremity. The claws are yellowiſh. The length of the body is about an inch and a half, and the extent of the wings a little more than ſeven inches.

* Pennant's Synopſ. of Quad. p. 357.

THE STRIPED BAT*.

THE nose of this bat is very small. The ears are short, broad, and pointing forward. The hair of the front, top of the head, neck, shoulders, back, and rump, is of a whitish yellow colour; and that of the under jaw, breast, and belly, is blueish, with a tincture of yellow. The colour of the membrane of the wings and tail is a mixture of yellow and brown.

* Pennant's Synops. of Quad. p. 368. This bat is a native of Ceylon, where it is called Kiriwoula; *Pallas, Miscel. p.* 49.

Plate CXXXVII.

A. Bell sculp.t

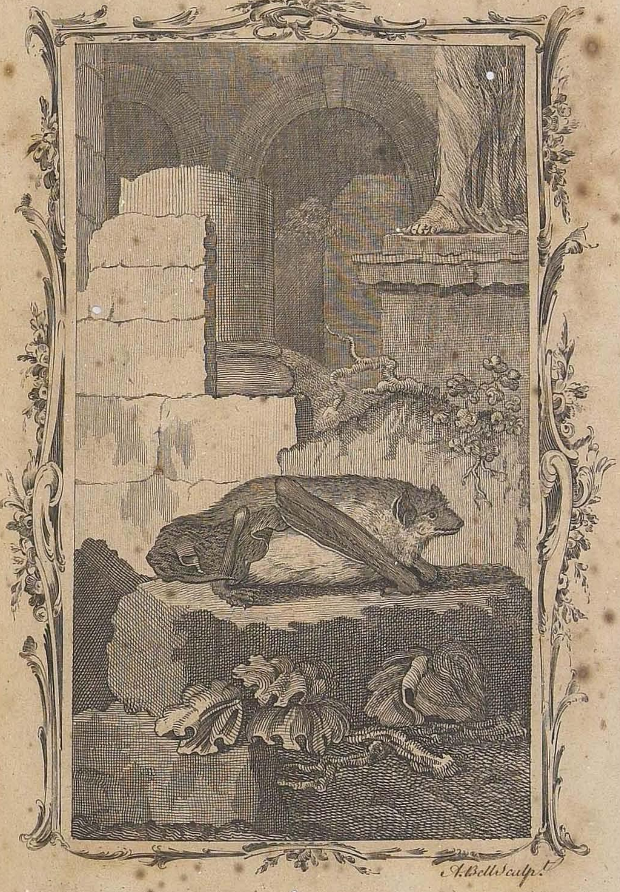
TERNAT BAT.

Plate CXXXVIII.

A. Bell Sculpt.

Lesser TERNAT BAT.

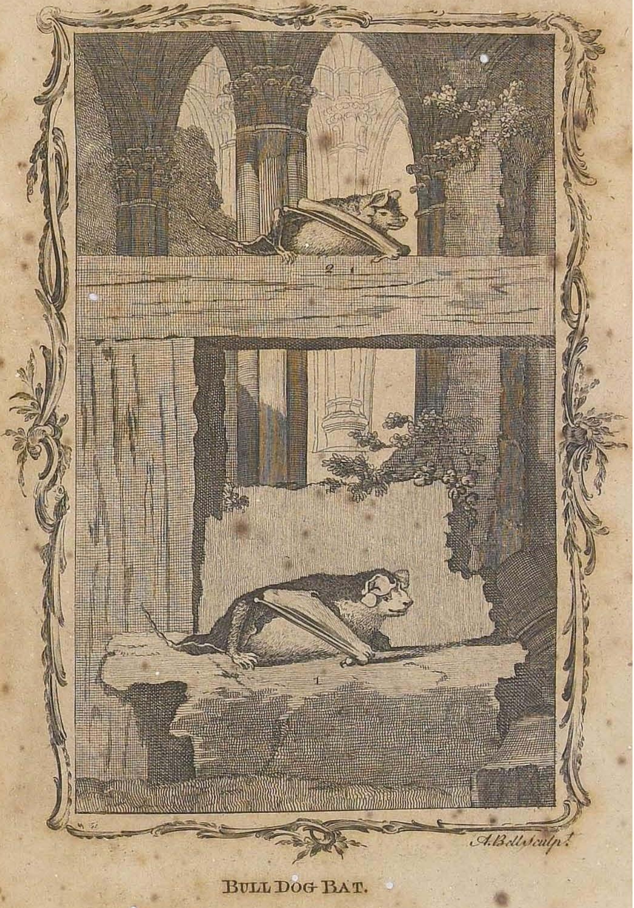
Plate CXXXIX.



A. Bell sculp.t

SENEGAL BAT.

Plate CXL.



BULL DOG BAT.

Plate CXLI.

A. Bell Sculp.t

1 BEARDED BAT. 2 STRIPED BAT.

THE FLYING SQUIRREL *.

THIS animal is related, by certain characters only, to the ſquirrel, the rat, and the *loir*, or fat ſquirrel. It reſembles the ſquirrel in nothing but the largeneſs of its eyes, and the form of its tail, which, however, is neither ſo long, nor ſo buſhy. It approaches the fat ſquir-

* Squirrel with round naked ears, full black eyes, and a lateral membrane from fore to hind-legs. The hair of the tail is long, diſpoſed horizontally, and longeſt in the middle. The colour above is a browniſh aſh, and beneath, it is white tinged with yellow. It is much leſs than the common ſquirrel; *Pennant's Synopſ. of Quad. p.* 293.

Buffon calls this animal *Le Polatouche*, from *Polatucha*, its Ruſſian name. It is alſo called *Letaga* in Muſcovy; *Wiewiorka, latajaca*, in Poland; *Sabouęſquanta* by the ſavages of Canada; and *Quimichpatlan* by other Indians of North America.

Mus Ponticus aut Scythicus, ſciuruſve alius, quem volantem cognominant; *Geſner. Icon. Quad. p.* 111. 743.

Sciurus Americanus volans, flying ſquirrel; *Raii Synopſ. Quad. p.* 215.

Ecureuil-volant; *Cateſby, Hiſt. Nat. de la Caroline, tom.* ii. *p.* 76.

Sciurus volans; *Seba, vol.* i. *p.* 67. *tab.* 41. *fig.* 3.

Sciurus volans, hypochondriis prolixis volitans, cauda rotundata; *Linn. Syſt. Nat. p.* 88. *Faun. Suec. No.* 88.

Sciurus obſcure cinereus aut rufeſcens, cute ab anticis cruribus ad poſtica, membranæ in modum extenſa, volans; *Briſſon, Quad. p.* 110. iii. *No.* 12, 13.

The flying ſquirrel; *Edwards's Hiſt. of Birds, part* iv. *p.* 191. *Phil. Tranſ. ann.* 1733, *p.* 35. *Lawſon's Carolina, vol.* ii. *p.* 76. *Kalm, vol.* i. *p.* 321. *tab.* 1. *Du Pratz, vol.* ii. *p.* 69.

Aſſapanick; *Smith's Virginia, p.* 27. *Joſſelyn's Voy. p.* 86. *De Laet, p.* 88.

rel by the figure of its body, by the ſhortneſs and nakedneſs of its ears, and by the hairs on its tail, which are of the ſame figure and length. But it is not, like the fat ſquirrel, ſubject to be reduced to a torpid ſtate by the action of cold. Hence the flying ſquirrel is neither a rat, a ſquirrel, nor a fat ſquirrel, though it participates of the nature of each of the three ſpecies.

Mr. Klein gave the firſt exact deſcription of this animal in the Philoſophical Tranſactions, 1733. It was known, however, long before that time. It is found equally in all the northern regions of the Old and New Continents*. But it is more common in America than in Europe, where they are rare, and confined to ſome northern

* In the country of the Hurons, there are three kinds of ſquirrels. . . . . . The flying ſquirrels, called *Sabouesquanta*, are moſt valued. They are aſh-coloured; their head is thick; and a membrane, or expanſion of the ſkin, extends from the fore to the hind-feet, which they ſtretch out when about to fly. . . . . . The females produce three or four at a litter, &c.; *Voy. du Pays des Hurons, par Sagard Theodat. p.* 306.—There is another ſmall animal, called *Aſſapanick* by the Virginian Indians, and *flying ſquirrel* by the Engliſh, which, by extending the ſkin attached to its legs, in the form of wings, flies three or four hundred feet at a time; *Hiſt. de Nouv. Monde par Jean Laët, lib.* iii. *p.* 88.—The flying ſquirrels are of the ſize of a large rat, and of a grayiſh white colour. They are as drowſy and indolent as the other ſquirrels are vigilant and active. They are called *flying ſquirrels*, becauſe they fly from one tree to another by means of a membrane which extends, in the form of wings, when they take their little flights; *Voy. de la Hontan, tom.* ii. *p.* 42.—The flying ſquirrels come from North America; but they have lately been diſcovered in Poland; *Edw. Hiſt. of Birds, p.* 191. *Cateſby, Hiſt. Nat. Carol. tom.* ii. *p.* 76.

coun-

countries, as thoſe of Lithuania and Ruſſia. This ſmall animal dwells upon trees, like the ſquirrel. It moves about from branch to branch; and, when leaping from one tree to another conſiderably diſtant, the looſe ſkin or membrane is ſtretched forward by the fore-feet, and backward by the hind-feet. The ſkin being thus ſtretched, and drawn out laterally above an inch, augments the ſurface of the body, without increaſing its quantity of matter, and, of courſe, retards ſo much the acceleration of the fall, that, by a ſingle leap, the creature is enabled to ſail to a conſiderable diſtance. This motion has no reſemblance to the flying of birds, or the fluttering of bats, both of which are performed by ſtriking the air with repeated vibrations. It is only a ſimple leap, depending on a ſingle impulſe: The motion produced by that impulſe is prolonged, becauſe the animal's body is rendered ſpecifically lighter, is more powerfully reſiſted by the air, and, conſequently, falls more ſlowly. The expanſion of the ſkin from foot to foot is peculiar to the flying ſquirrel; and this character is ſufficient to diſtinguiſh it from all other ſquirrels, rats, and dormice. But the moſt remarkable peculiarities of Nature are ſeldom confined to a ſingle ſpecies. In the ſame genus, there is another animal with a ſimilar ſkin, which extends not only from foot to foot, but from the head to the tail. This animal, a figure and de-

ſcription of which is given by Seba * under the name of the *Virginian flying ſquirrel*, ſeems to differ ſo greatly from our flying ſquirrel, as to conſtitute a diſtinct ſpecies. We cannot, however, determine the nature of this animal; it may exiſt, and be of a different ſpecies from our flying ſquirrel. But it may be a ſimple variety only, or perhaps an accidental or monſtrous production; for it is mentioned by no traveller or naturaliſt. Seba is the only perſon who has ſeen it in the cabinet of *Vincent*. I am always ſuſpicious of deſcriptions made in cabinets; for the animals in theſe repoſitories are often manufactured in ſuch a manner as to render their appearance moſt ſingular.

We have kept the flying ſquirrel a long time in a living ſtate. It has been pointed out by many travellers. It is mentioned by Sagard Theodat †, Jean de Laet ‡, Fernandes ||, La Hontan §, Denys ¶, Cateſby,

* Seba, vol. i. p. 72. tab. 44. fig. 3.

† Voyage au Pays des Hurons, p. 305.

‡ Hiſt. du Nouveau Monde, p. 88.

|| *Quimichpatlan, ſeu mus volans, fuſco pilo nigroque promiſcue tegitur, qui prope brachia et crura eſt prolixior, ac parvarum alarum formâ. . . . . Eſt autem cæteris minor, parvo et murino capite, magnis auriculis*, &c.; Fernand. Hiſt, Nov. Hiſp. p. 9. But this author is wrong when he ſays, that the long hair ſerve the animal for wings; for it is unqueſtionably the prolongation of the ſkin which anſwers this purpoſe.

§ Voyage de la Hontan, tom. ii. p. 42.

¶ The hair of the flying ſquirrels is blacker than in the French ſquirrels. Their wings extend from the fore to the hind-feet; are about two inches broad, very thin, and covered with fine down,

Catesby*, Dumont†, Le Page de Pratz‡, &c.; and good descriptions and figures of it are given by Klein, Seba, and Edwards. Our own observations, with regard to this animal, correspond very well with what these authors relate. It is much smaller than the squirrel. The one in our possession weighed two ounces only, which is nearly the weight of a common bat; but the squirrel weighs eight or nine ounces. Some of them, however, are larger. We have a skin of a flying squirrel, which, from its dimensions, must have belonged to a larger animal than the ordinary kind.

The membrane, or expansion of the skin, which unites the fore and hind-legs of the flying squirrel, and supports it in the air, makes it approach to the bat. It also resembles the bat in its natural disposition; for it reposes and sleeps

down. Their flight seldom exceeds thirty or forty paces; but, if they fly from tree to tree, double these distances will be necessary; *Descript. Geog. de Amerique Septent. tom.* ii. *p.* 331.

* Hist. Nat. de la Caroline, p. 76.

† In Lousiana, two species of squirrels are very common; the one is entirely similar to those of France, the other has a little more of the ash-colour, and between the two fore-feet there is a membrane, by means of which it springs from one tree to another at considerable distances; *Mem. sur la Lousiane, p.* 81.

‡ The flying squirrels have received their denomination from their faculty of leaping from one tree to another, at the distance of above twenty-five or thirty feet. Their hind-feet are connected to the fore-feet by a membrane, which supports them in the air when they leap. They seem to fly; but they sink lower down, &c.; *Hist. de la Louisiane, par M. le Page du Pratz, tom.* ii. *p.* 98.

during the day, and refumes its activity in the evening. It is eafily tamed; but it is fubject to become enraged, and muft be kept in a cage, or reftrained by a fmall chain. Flying fquirrels are fed with bread, fruits, and feeds. They are particularly fond of the buds and young fhoots of the pine and birch trees. They fearch not for nuts and almonds, like the fquirrels. They make a bed of leaves, in which they fleep during the whole day, and never depart from it till night, when ftimulated by hunger. As they have little activity, they become an eafy prey to pine-weafels, and other animals which climb trees; and, of courfe, the fpecies is not numerous, though the females generally bring forth three or four young at a time.

SUPPLEMENT.

The SAILING, or Great FLYING-SQUIRREL *.

I Formerly remarked, p. 311. that there were larger flying fquirrels than thofe of which we have given

* Le Taguan; *Buffon.*

Sciurus Sagitta, hypochondriis prolixis volitans, cauda plano-pinnata lanceolata; *Linn. Syft. Nat. p.* 88.

Sciurus petaurifta; *Pallas, Mifcel. Zool. p.* 54. *tab.* 6.

Sciurus maximus volans, feu felis volans; *Briffon. Quad. p.* 12.

Flying cat; *Nieuhoff, p.* 354.

given defcriptions, and that there is, in the royal cabinet, a fkin five and a half inches long, while that of the common fpecies exceeds not four inches. But this difference is nothing, when compared to that which fubfifts between our flying fquirrel, and the Eaft India *taguan*, whofe fkin was fent from Machian to the Prince de Conde, who was fo obliging as to allow me to examine it. This great flying fquirrel, which is preferved in the cabinet of Chantilly, was twenty-three inches long, from the point of the nofe to the extremity of the body. Thefe animals are found not only at Machian, but in the Philippine iflands, and probably in many other parts of India. The one juft mentioned was taken on the Malabar coaft. Its fize is gigantic, when compared with the flying fquirrels of Ruffia and America; for the latter exceeds not four and a half or five inches in length. Neverthelefs, the taguan, or great flying fquirrel, refembles the other fpecies in figure and in the prolongation of the fkin, which is perfectly fimilar. But, as the difference of fize is fo remarkable, it ought to be confidered as a diftinct fpecies.

The great flying fquirrel differs from the fmall, 1. In fize, being twenty-three inches long. 2. In the length of the tail, which is twenty-one inches. Befides, the tail is not flat, like that of the common kind, but round, like that of the cat, and covered with long blackifh brown hair. 3. The eyes and ears of both fpecies are fimilarly fituated,

ſituated, and the black whiſkers are proportionally the ſame; but the head of the large kind is ſmaller in proportion to the ſize of its body. 4. The face is entirely black; the ſides of the head, and the cheeks, are mixed with black and white hairs; on the top of the noſe, and round the eyes, the hair is a mixture of black, white, and red. Behind the ears there are dark long brown hairs, which cover the ſides of the neck; theſe are not to be found in the common kind. The top of the head, and of the whole body, as far as the tail, is ſprinkled with black and white hairs, where the black predominates, becauſe the white hairs are black at the roots, and become white near their extremities only. The under part of the body is of a dirty white colour, which extends below the belly. 5. The prolongation of the ſkin is covered above with dark brown hair, and below with yellowiſh aſh-coloured hair. The legs are of a reddiſh black colour, and the upper part of the tail is brown. This brown ſhade grows gradually deeper till it becomes black at the extremity of the tail. 6. The feet of the great flying ſquirrel have the ſame number of toes as in the common kind; but thoſe of the former are covered with black, and thoſe of the latter with white hair. The claws are thin and hooked like thoſe of a cat. From this reſemblance, and that of the tail, the animal has received the name of the *flying cat*. The large claw of the fore-feet is five lines and a half long,

long, and the longeſt of the hind-feet only five lines. The figure of this animal, drawn by M. de Seve as perfectly as the ſtate of the dried ſkin would permit, is here repreſented. We have called it *le taguan*, in conſequence of the following paſſage in the General Hiſtory of Voyages*:

'In the Philippine iſlands, there is a ſpecies of 'flying cat, of the ſize of a hare, and of the 'colour of a fox, which the natives call *taguan*. 'It has wings like a bat, but covered with hair, 'which they make uſe of in leaping from one 'tree to another, at the diſtance of thirty palms.'

After writing this article, a work of M. de Voſmaër, containing deſcriptions of ſeveral quadrupeds and birds, has come to my hands. I there read with pleaſure the deſcription of the great flying ſquirrel, and ſome remarks concerning the ſmaller ſpecies.

M. de Voſmaër informs us, that he ſaw, in the poſſeſſion of the Prince of Orange, two of the ſmall flying ſquirrels alive; but that they did not live long.

'They ſlept,' he ſays, 'almoſt the whole day. 'When briſkly puſhed, they made a ſmall ef-'fort, as if they intended to fly; but they ſtole 'away immediately, being exceedingly timid. 'They are fond of heat; and, when uncovered, 'they quickly concealed themſelves under the 'wool which formed their bed. Their food was

* Hiſt. Gen. des Voyages, tom. x. p. 410.

'ſoaked

'soaked bread, fruits, &c. which they eat, like 'the squirrels, by sitting on their posteriors, and 'holding the food with their fore paws. At 'the approach of night, they become more vi- 'vacious and restless. The difference of climate 'had unquestionably great influence on these 'animals, which appeared to be extremely de- 'licate*.'

These remarks of M. de Vosmaër correspond with my own observations. I have just now one of these little animals (March 17, 1775) living in a cage, with a small box in its bottom. It continues the whole day covered with the cotton, and comes out in the night only to take food. It has a faint cry, like that of a mouse, which is never heard but when the animal is forced out from among the cotton. Though its teeth are very small, it bites severely. Its hair is extremely smooth and agreeable to the touch. There is no way of making it extend its wings, but by obliging it to fall from a height. It is so remarkably chilly, that I cannot conceive how it can defend itself from the cold in the northern climates; since in France, if not kept in a chamber, and furnished with wool or cotton to lie on, and even to wrap itself all over, it would perish in a very short time.

With regard to the taguan, or great flying squirrel, let us attend to the remarks of M. de Vosmaër: 'The small flying squirrel described

* Descript. d'une Ecureuil Volant, par M. Vosmaër, p. 9.

'by

'by M. de Buffon, has a great affinity to the 'larger ſpecies. They both have ſimilar mem-'branes, not for flying, but for ſupporting them-'ſelves in the air, when they leap from branch 'to branch.

'The ſkin of the *great flying ſquirrel*, which 'is a more proper appellation than that of the '*flying cat*, was ſent me in a dried ſtate. M. 'Alamand has given a ſhort deſcription of this 'animal from a female ſubject preſerved in the 'cabinet of the Leyden academy.

'Valentine firſt mentioned theſe animals, and 'ſays, that they are found in the iſland of Gilo-'lo, and go by the name of *flying civets*. He 'remarks, that they have long tails like thoſe of 'the monkeys; that, when at reſt, their wings 'are not ſeen; that they are wild and timid; 'that their head is reddiſh, with a mixture of 'gray; that their wings, or rather membranes, 'are covered on both ſides with hair; that their 'bite is ſo ſtrong, that they eaſily eſcape from a 'wooden cage in a ſingle night; that, by ſome 'people, they are called *flying monkeys*; that they 'are alſo found in the iſland of Ternat, where 'they were firſt miſtaken for ſquirrels, only the 'head was thinner and larger, there was gray 'hair above the muzzle, and a black line run 'the whole length of the back; that the ex-'tenſible ſkin, which adheres to their bodies, 'is garniſhed with hair, as white, on the under 'ſide, as that of the belly; and that, when they

'leap

'leap from tree to tree, they extend their mem-'branes, and have then the appearance of being 'flat.'

In the work of M. l'Abbé Prevoſt, it is ſaid, that this animal is found in the Philippine iſlands, where it is called *taguan*.

'I have ſeen two females, the one in the Ley-'den cabinet, the other in that of *M. Heeteren* 'at the Hague. The colour of the body was a 'light cheſnut, deeper on the back, and the end 'of the tail was blackiſh. The difference of 'ſex is diſtinguiſhable by ſix ſmall paps, placed 'at equal diſtances, in two rows, from the breaſt 'to the belly. I have alſo ſeen two males in 'the Prince of Orange's cabinet. The length 'of the body, in Rheniſh meaſure, was one foot 'five inches, and that of the tail one foot eight. 'The head is more pointed than that of the 'ſquirrel.

'The ears are ſmall, pointed, and covered on 'the outſide with ſhort, fine, clear brown hair. 'Above the eyes, there are two long browniſh 'yellow hairs; but there are none on the eye-'lids. On each ſide of the muzzle, there are 'long, black, rigid whiſkers. The noſe is 'naked; the teeth, like thoſe of the ſquirrels, 'are two above and two below, of a deep yellow 'colour, and very long. The grinders are at 'the bottom of the muzzle.

'Both fore and hind-feet, eſpecially the latter, 'are concealed by the membrane, which covers

'them nearly as far as the paws. The fore-'feet are divided into four black toes, the two 'middlemoſt, and particularly the third, being 'much longer than the other two. The hind-'feet are alſo black, and divided into five toes, 'four of which are of equal length; but the 'fifth, or innermoſt, is much ſhorter, and has 'the appearance of a ſimple appendage. The 'claws are large, ſharp, black before, white 'below, and broad at the origin. The articu-'lations of the toes are ſimilar to thoſe of the 'ſquirrels.

'The ſkin or membrane is thinneſt in the 'middle, where it is about four inches broad on 'each ſide, and exceeds not the thickneſs of fine 'Indian paper. In other parts, it is alſo very 'thin, of a clear texture, and garniſhed with 'ſmall cheſnut hairs. Near the fore and hind-'feet, it becomes thicker, and riſes in the form 'of a bag, wideſt at the thighs, and growing 'gradually narrower towards the paws. This 'part is cloſely covered with brown and black 'hairs. Upon the fore-paws it appears looſe, 'hangs down like a rag, and is covered with 'thick hair. The external edges of this ſkin 'are bounded with a thick ſelvage of black and 'gray hairs.

'The upper part of the head, the back, and 'the origin of the tail, are covered with pretty 'long, thick hairs, black in the under part, and

'moſtly

'mostly of a grayish white colour at the
'summits.

'The hairs of the tail are black, more gray 'near the body, and so disposed as to make the 'tail appear round.

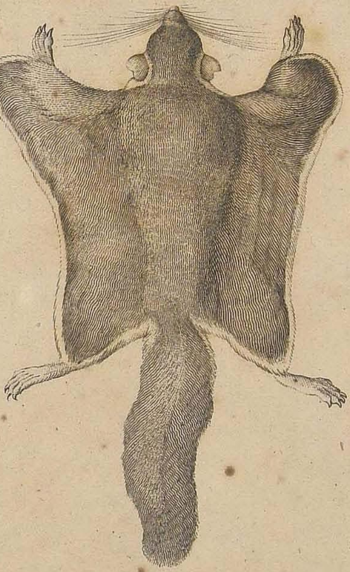
'The cheeks are of a grayish brown colour; 'and the throat, breast, and belly, are of a clear 'whitish gray. On the under side of the mem-'brane there are also gray hairs; but they are 'very thinly scattered.'

Plate CXLII.

A. Bell Sculpt.

FLYING SQUIRREL.

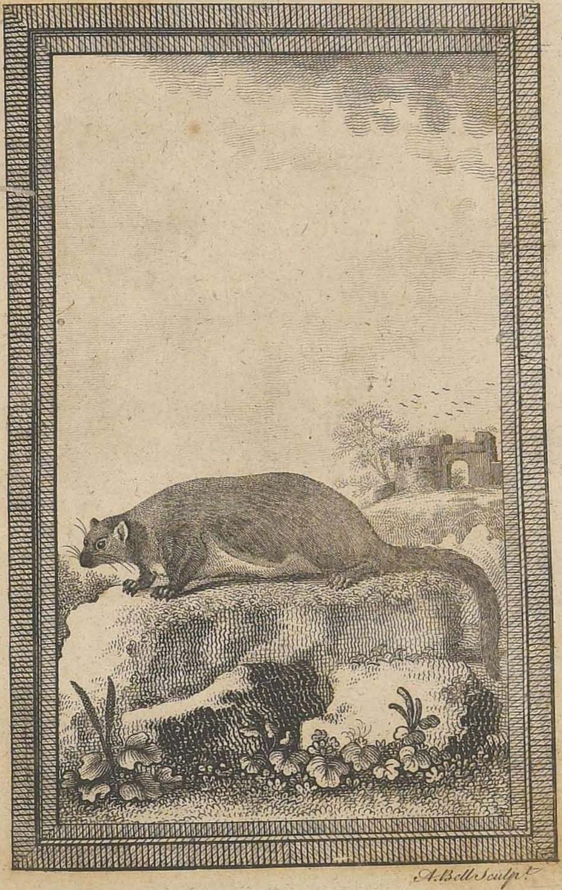
Plate CXLIII.



A. Bell Sculp.t

FLYING SQUIRREL.

Plate CXLIV.



A. Bell Sculpt.

SAILING, or great FLYING SQUIRREL.

Plate CXLV.

A. Bell Sculpt.

Great FLYING SQUIRREL.

The GRAY SQUIRREL*.

THIS animal inhabits the northern regions of both worlds. It has a great resemblance to the squirrel, from which it differs only by the following external characters: It is larger than the squirrel, and its hair is not reddish, but of a gray colour, more or less deep. The ears are deprived of the long hairs, which adorn those of the common squirrel. These differences, which are constant, seen sufficient to constitute a distinct species. Several authors maintain, that the gray squirrels of Europe differ from those of America; that the former belong to the common kind, whose colour changes with the season in our northern climates. Without pretending to deny this last fact, which,

* The ears of the gray squirrel are plain; the hair is of a dull gray colour, mixed with black, and often tinged with a dirty yellow. The belly and insides of the legs are white. The tail is long, bushy, gray, and striped with black. It is about the size of a half-grown rabbit; *Pennant's Synops. of Quad. p.* 282.

Petit gris; *Buffon.*

Gray squirrel; *Josselyne's Voy. Catesby's Carolina, vol.* ii. *p.* 74. *Smith's Voy. p.* 27. *Kalm's Voy. p.* 95. 310.

Fox squirrel; *Lawson's Carolina, p.* 124.

Sciurus cinereus Virginianus major; *Raii Synops. Quad. p.* 215.

Sciurus cinereus; *Lynn. Syst. Nat. p.* 86.

Sciurus cinereus, auriculis ex albo flavicantibus. Sciurus Virginianus. L'Ecureuil de Virginie; *Brisson. Regn. Anim. p.* 107.

 however,

however, is not properly aſcertained, we conſider the gray ſquirrel of Europe and that of America as the ſame animal, and as a ſpecies diſtinct from the common ſquirrel; for our ſquirrels are found in North America as well as in the north of Europe. They are of the ſame ſize, and their colour is of a more or leſs lively red, according to the temperature of the climate. At the ſame time, we find, in both Continents, other ſquirrels, which are larger, and whoſe hair is gray or blackiſh in all ſeaſons. Beſides, the fur of the gray ſquirrel is much finer and ſofter than that of the common kind. Hence it appears, that theſe two animals, the differences between which are conſtant, and their ſpecies, though very ſimilar, have never intermixed, ought to be regarded as ſeparate ſpecies. M. Regnard * affirms poſitively,

* Theſe gray ſquirrels are the ſame with the French ſquirrels, only their reddiſh colour changes to gray during the winter ſnows. The farther north, they turn always more gray. The Laplanders make war againſt them in the winter; and their dogs are ſo well trained to this ſpecies of hunting, that they never failed to diſcover the ſquirrels upon the higheſt trees, and to advertiſe the hunters who accompanied us. We ſhot ſome of them with our guns; for the Laplanders had not then their round arrows, with which they bring down theſe animals; and we had the pleaſure of ſeeing with what dexterity and quickneſs they take off the ſkin. The hunting ſeaſon begins about Michaelmas. Almoſt every native of Lapland is occupied in this buſineſs, which is a conſiderable article of commerce. Forty ſkins are ſold for a crown. But there is no merchandiſe in which a man may be more deceived, than in that of the gray ſquirrel and ermines; for you buy without ſeeing, the fur ſide of the ſkins being always turned inmoſt. There is

positively, that the gray squirrels of Lapland are the same animals with our French squirrels. This authority would be sufficient, were it not contradicted by other evidences. M. Regnard has written some excellent theatrical works; but he was not much versant in natural history: Neither did he remain long enough in Lapland to see the squirrels change their colour. It is true, that some naturalists, and among this number is Linnæus, tell us, that, in the northern regions, the squirrels change their colour in

is no distinction to be made. The good and bad are all sold at the same price. We learned from our Laplanders a surprising fact concerning these gray squirrels, which was afterwards confirmed by our own experience. They often change the places of their residence, and not one of them can be found, during the whole winter, where there were millions the preceding year. In their marches from one part of the country to another, when it becomes necessary to pass a lake or a river, which are very frequent in Lapland, these animals lay hold of a piece of pine or birch bark, which they draw to the edge of the water, mount upon it, and abandon themselves to the pleasure of the wind and waves. They erect their tails in the form of sails; but, if the wind blows too strong, or the waves rise high, both pilot and vessel are overturned. This kind of shipwreck, which often consists of three or four thousand sail, generally enriches some Laplanders, who find the dead bodies on the shore, and, if they have not lain too long on the sand, prepare the furs in the ordinary manner. But, when the winds are favourable, the poor creatures make a happy voyage, and arrive at their destined port. This remarkable fact might have the appearance of a fable, if it had not fallen within my own observation; *Oeuvres de M. Regnard, tom.* i. p. 163.

winter *; which is not improbable, as, in these climates, hares, wolves, and weasels also change their colours. But this change is from yellow or red to white, and not from yellow or red to an ash-colour. But, to confine ourselves to the squirrel, Linnæus, in the *Fauna Suecica*, says, *æstate ruber, hyeme incanus*. The change, therefore, is from red to white, or rather from reddish to whitish; and it is not easy to conceive why Linnæus, in the last edition of his *Systema Naturæ*, should have substituted, in place of *incanus*, the word *cinereus*. M. Klein † assures us, on the contrary, that the squirrels in the neighbourhood of Dantzick are reddish in winter as well as in summer; and that there are, in Poland, gray and blackish squirrels as well as the reddish kind, which never change their colour. These gray and blackish squirrels are found in Canada ‡, and in all parts of North America.

* Sciurus vulgaris . . . . habitat in arboribus frequens, æstate ruber, hyeme incanus; *Faun. Suec. p.* 9. Sciurus vulgaris . . . . Æstate ruber, hyeme cinereus; *Syst. Nat. p.* 63.

† Sciurus vulgaris rubicundus . . . . Nostrates tam in silvis quam in caveis vulgares et hyeme et æstate rubri . . . In Polonia utique vulgares cinerei non mutantes pellem; haud rari quoque vulgares nigricantes, &c.; *Klein Quad. p.* 53.—In Ukrania, inter sciuros coloris rutili, nigricantes spectantur; *Rzaczynski, auct. Hist. Nat. Polon. p.* 321.

‡ The Virginian squirrels are nearly of the size of rabbits. They are black, or mixed with black and white. However, the greatest number of them are ash-coloured; *Descript. des Indes Occident. par Jean Laet, p.* 88.——The finest fur brought from

America. Hence the gray ſquirrel may be regarded as an animal common to both Continents, and of a different ſpecies from the ordinary ſquirrel.

Beſides, we never ſee our ſquirrels, though very numerous in the foreſts, unite together in flocks. Neither do we ever ſee them travel in company, approach the waters, or traverſe rivers on the bark of trees. Thus they differ from the gray ſquirrel, not only in ſize and colour, but in manners and habits; for, though the navigations of the gray ſquirrel ſeem to be hardly credible, yet they are atteſted by ſuch a number of witneſſes*, that we cannot ſay abſolutely that they are falſe.

Of all the wild quadrupeds, the ſquirrel is ſubject, perhaps, to the greateſt varieties, or whoſe

from the Iroquois country, is the ſkin of the black ſquirrel. This animal is as large as a cat of three months old; it is extremely vivacious, very gentle, and eaſily tamed. The Iroquois make robes of this fur, which they ſell for ſeven or eight piſtoles; *Charlevoix, Hiſt. de la Nov. France, tom.* i. *p.* 273.

* Rei veritate nititur, quod Geſnerus ex Vincentio Beluacenſi et Olao M. referet: Sciuros, quando aquam tranſire cupiunt, lignum leviſſimum aquæ imponere, eique inſidentes, et cauda, non tamen ut vult, erecta, ſed continuo mota, velificantes, neque flante vento, ſed tranquillo æquore tranſvehi; quode fide dignus fiduſque meus emiſſarius ad inſulas Gothlandiæ plus ſimplici vice obſervavit, et cum ſpoliis in littoribus ibidem collectis redux, mirabundus mihi retulit; *Diſſertatio de Sciuro volante. Tranſact. Angl. No.* 427. *pag.* 38. *Klein de Quad. pag.* 53.——Cortice interdum ſciurus navigat; *Linn. Syſt. Nat. pag.* 63.

ſpecies, at leaſt, is approached by the greateſt number of neighbouring ſpecies. The white ſquirrel of Siberia * appears to be only a variety of the common kind. The black † and the deep gray ‡ ſquirrels of America may be varieties of the gray ſquirrel. The Barbary, the palm, and the ground ſquirrels, are three ſpecies which make a very near approach to each other.

We have few hiſtorical facts concerning the gray ſquirrel. Fernandes ‖ remarks, that the gray or blackiſh ſquirrels of America dwell upon trees, and particularly upon the pine; that they feed upon fruits and ſeeds; that they amaſs proviſions for the winter, which they depoſit in the holes of trees, where they alſo retire to paſs the ſevere ſeaſon; that in theſe holes the females bring forth their young, &c. Thus the manners of the gray ſquirrel differ from thoſe of the common kind, who build neſts, like the birds, on the tops of trees. We cannot, however, pretend to determine abſolutely that this blackiſh ſquirrel of Fernandes is the ſame with the gray ſquirrel of Virginia, or that both of them are the ſame with the gray ſquirrel of Europe. We only

* Sciurus albus Sibericus; *L'écureuil blanc de Sibérie*; *Briſſon. Regn. Anim. p.* 151.

† Sciurus Mexicanus; *Hernand. Hiſt. Mexic. p.* 582.—— Sciurus niger; *L'écureuil noir*; *Briſſon. Regn. Anim. p.* 151.

‡ L'écureuil d'Amerique; *Seba, vol.* i. *p.* 78. *tab.* 48. *fig.* 5. —— Sciurus obſcure cinereus.—— Sciurus Americanus; *Briſſon. Regn. Anim. p.* 152.

‖ Franciſci Fernandes; *Hiſt. Animal. Nov. Orbis, p.* 8.

mention

Plate CXLVI.

A. Bell Sculp.t

GRAY SQUIRREL.

mention it as a probability; for theſe three animals are nearly of the ſame ſize and colour, inhabit the ſame climates, have preciſely the ſame figure, and their ſkins are equally uſed under the denomination of the *gray fur*, or the fur of the *gray ſquirrel*.

The PALM SQUIRREL *, the BARBARY SQUIRREL †, and the GROUND SQUIRREL ‡.

THE palm ſquirrel is of the ſize of a rat, or of a ſmall ſquirrel. He lives upon the palm-trees, and from that circumſtance he has had his name. By ſome he is called the *palm rat*,

* The palm ſquirrel has plain ears, an obſcure pale yellow ſtripe on the middle of the back, another on each ſide, a third on each ſide of the belly, the two laſt being very diſtinct. The reſt of the hair on the ſides, back, and head, is black and red, very cloſely mixed; that on the thighs and legs is more red. The belly is of a pale yellow. The hair on the tail does not lie flat, but encircles it; it is coarſe, and of a dirty yellow, barred with black; *Pennant's Synopſ. of Quad. p.* 287.

Le palmiſte, rat palmiſte, écureuil des palmiers.

Muſtela Africana; *Cluſii Exot. p.* 112.; *Raii Synopſ. Quad. p.* 216.

Muſtela Libyca; *Nieremberg, Hiſt. Nat. p.* 172.

Sciurus palmarum ſubgriſeus, ſtriis tribus flavicantibus, caudaque albo nigroque lineata; *Lynn. Syſt. Nat. p.* 86.

Sciurus palmarum, coloris ex rufo et nigro mixti, tæniis in dorſo flavicantibus; *Briſſon. Quad. p.* 109.

† The Barbary ſquirrel has full black eyes, and white orbits. The head, body, feet, and tail, are cinereous, inclining to red. The colour is lighteſt on the legs. The ſides are marked lengthwiſe with two white ſtripes. The belly is white. The tail is buſhy, marked regularly with ſhades of black, one beneath another. It is of the ſize of the common ſquirrel; *Pennant's Synopſ. of Quad. p.* 287.

Sciurus getulus; *Caii Opuſc. p.* 77. *Geſner. Quad. p.* 847. *Aldrov. Quad. Digit. p.* 105.

Sciurus

rat, and by others the *palm ſquirrel*. But, as he is neither a rat nor a ſquirrel, we have given him the ſimple denomination of *le palmiſte*. The form of his head is nearly the ſame with that of the ſhort-tailed field-mouſe, and covered with frizled hair. His long tail trails not, like that of the rat, but is elevated vertically, without, however, lying on his back, like that of the ſquirrel. The tail is covered with hair longer

Sciurus getulus, fuſcus, ſtriis quatuor albidis longetudinalibus; *Linn. Syſt. Nat. p.* 87.

The Barbary ſquirrel; *Edwards, p.* 198.

Sciurus coloris ex rufo et nigro mixti, tæniis in lateribus alternatim albis, et fuſcis aut nigris; *Briſſon. Regn. Anim. p.* 109.

Le barbareſque; *Buffon.*

‡ The ground ſquirrel has plain ears. The ridge of the back is marked with a pale yellow ſtripe, bounded above and below with a line of black. The head, body, and tail, are of a reddiſh brown colour; the tail is darkeſt. The breaſt and belly are white, and the noſe and feet pale red. The eyes are full; *Pennant's Synopſ. of Quad. p.* 288.

Mouſe ſquirrel; *Joſſelyne's Voy. p.* 86.

Ground ſquirrel, Ecureuil de Terre; *Lawſon's Carolina, p.* 124. *Cateſby's Carolina, vol.* ii. *p.* 75. *Edwards, p.* 181. *Kalm, vol.* i. *p.* 322. *tab.* 1.

Sciurus Liſteri; *Raii Synopſ. Quad. p.* 216.

Sciurus minor virgatus; *Nov. Com. Petrop. vol.* v. *p.* 344.

Bærn-dæſkie; *Le Brun. Voy. Muſcov. vol.* ii. *p.* 432.

Sciurus ſtriatus, flavus, ſtriis quinque fuſcis longitudinalibus; *Linn. Syſt. Nat. p.* 87. *Klein. Quad. p.* 53.

Sciurus rufus, tæniis ex albo flavicantibus intermixtis.——Sciurus Carolinenſis; *Briſſon. Regn. Anim. p.* 155.

Le Suiſſe; *Buffon.*

L'Ecureuil Suiſſe; *Voy. de la Hontan, tom.* ii. *p.* 43. *Deſcript. de l'Amerique Septent. par Denys. tom.* ii. *p.* 331.

 than

than that of the body, but ſhorter than the hair on the tail of a ſquirrel. Along the ſpine of the back, from the neck to the tail, there is a whitiſh ſtripe, accompanied on each ſide with a brown ſtripe, which is followed by another white ſtripe. This ſtriking character, by which this animal would appear to be diſtinguiſhed from all others, is found to be nearly the ſame in the Barbary and ground ſquirrels. Theſe three animals have ſuch a reſemblance to each other, that Mr. Ray * imagined they conſtituted but one ſpecies. If it be conſidered, however, that the palm and Barbary ſquirrels are only found in the warm climates of the Old Continent, and that the ground ſquirrel, deſcribed by Liſter, Cateſby †, and Edwards ‡, is peculiar to the cold and temperate regions of the New World, we muſt conclude them to be different ſpecies. By a cloſer examination, we perceive that the white and brown ſtripes of the ground ſquirrel are differently diſpoſed from thoſe of the palm ſquirrel. In the palm ſquirrel, the white ſtripe, which extends along the ſpine of the back, is black or brown on the ground ſquirrel, and the white ſtripes are placed next

* Sciurus getulus Caii, muſtela Africana Cluſii, eadem nobis videtur. ——— Deſcriptio muſtelæ Africanæ cum ſciuri getuli deſcriptione ſatis bene convenit, ut non dubitem idem animal eſſe: Huic ſimilis eſt ſciurus a clariſſimo *Dom. Liſter* obſervatus et deſcriptus; *Raii Synopſ. Quad. p.* 216.

† Cateſby, Hiſt. Nat. de la Caroline, tom. ii. p. 75.

‡ Edwards, Nat. Hiſt. of Birds, part iv. p. 181.

the

the black, as the black are next the white in the palm ſquirrel. Beſides, the palm ſquirrel has only three white ſtripes; but the ground ſquirrel has four. The latter turns his tail upon his back, but the former does not. The palm ſquirrel dwells upon trees; but the ground ſquirrel keeps always on the ſurface of the earth, and, from this circumſtance, he has obtained his name. In fine, the ground ſquirrel is ſmaller than the palm ſquirrel: From all theſe conſiderations, they appear to be two diſtinct ſpecies.

With regard to the Barbary ſquirrel, as it is a native of the ſame continent and climate, as it is of the ſame ſize, and nearly of the ſame figure, with the palm ſquirrel, they might be conſidered as varieties of the ſame ſpecies. By comparing, however, the deſcription and figure of the Barbary ſquirrel given by Caius *, and copied by Aldrovandus † and Johnſton ‡, with the deſcription and figure we have given of the palm ſquirrel, and by again comparing Edwards's deſcription and figure of the Barbary ſquirrel, we ſhall perceive diſtinctions ſo remarkable as to point out theſe animals as belonging to different ſpecies. All the three are in the royal cabinet. In the Barbary ſquirrel, the head and face are rounder, the ears larger, and the hair of the tail longer and more buſhy, than in the palm ſquirrel. In

* Sciurus getulus *Caii, apud Geſner. Hiſt. Quad. p.* 847.

† Aldrov. de Quad. Digit. p. 405.

‡ Johnſ. de Quad. p. 113.

the

the form of the head and body, the Barbary ſquirrel reſembles the ſquirrel more than the rat, and the palm ſquirrel reſembles the rat more than the ſquirrel. The Barbary ſquirrel has four white ſtripes, the palm ſquirrel only three. In the palm ſquirrel, the middle white ſtripe runs along the ſpine of the back; but, in the Barbary ſquirrel, the ſtripe along the back is black mixed with red, &c. Beſides, theſe animals have nearly the ſame manners and diſpoſitions as the common ſquirrels: They all feed upon fruits, which they carry to their mouth by their fore-paws. They have the ſame voice and cry, the ſame inſtinct and agility. They are extremely gentle and lively. They are eaſily tamed, and contract ſuch an attachment to their habitation, that, after leaving it, they ſpontaneouſly return. The figure of both is handſome. Their robe, which is ſtriped with white, is more beautiful than that of the ſquirrel; their ſize is ſmaller, their body lighter, and their movements equally prompt. Like the common ſquirrel, the palm and Barbary ſquirrels dwell on the tops of trees; but the ground ſquirrel never riſes from the earth, in which, like the long-tailed field-mouſe, he makes a retreat impenetrable by the water. Unleſs completely tamed, he bites every perſon indiſcriminately*. Hence, in manners and diſpoſitions, he has a greater reſemblance to the rats and field-mice than to the ſquirrels.

* Voyage du Pays des Hurons, par Sagard Theodat, p. 306.

Plate CXLVII.

PALM SQUIRREL.

Plate CXLVIII.

A. Bell Sculp.t

BARBARY SQUIRREL.

Plate CXLIX.

A Bell Sculpt.

GROUND SQUIRREL.

The GREAT ANT-EATER *, the MIDDLE ANT-EATER †, and the LEAST ANT-EATER ‡.

IN South America, there are three animals, with a long muzzle, a narrow mouth, without any teeth, and a long round tongue, that they

* The great ant-eater has a long ſlender noſe, ſmall black eyes, ſhort round ears, a ſlender tongue, two feet and a half long, which lies double in the mouth; ſlender legs, four toes on the fore-feet and five on the hind. The two middle claws on the fore-feet are very large, ſtrong, and hooked. The hair on the upper part of the body is half a foot long, black mixed with gray. From the neck croſs the ſhoulders to the ſides, there is a black line bounded above with white. The fore legs are whitiſh, marked above with a black ſpot. The tail is clothed with very coarſe black hairs, a foot long. The length, from noſe to tail, is about three feet ten inches, and that of the tail is two feet and a half.

Le Tamanoir, le Fourmiller-tamanoir, le mange-fourmis, le groſs mangeuer de fourmis.

Tamandua-guacu ſive major; *Piſon. Hiſt. Braſil. p.* 320.

Tamandua gaucu; *Marc. Hiſt. Nat. Braſil. p.* 225.

Piſmire-eater; *Nieuhoff, p.* 19.

Mange-fourmis, ou Recard Americain; *Voy. de Deſmarchais, tom.* iii. *p.* 307.

Tamandua major, cauda panniculata; *Barrere, Hiſt. Franc. Equinox. p.* 162.

Myrmecophaga jubata, palmis tetradactilis, plantis pentadactylis, cauda jubata; *Linn. Syſt. Nat. Klein. Quad. p.* 45. *tab.* 5. *fig.* 1.

Myrmecophaga roſtro longiſſimo, pedibus anticis tetradactylis, poſticis pentadactylis, cauda longiſſimis pilis veſtita; *Briſſon. Quad. p.* 15.

† The

they thruſt into the ant neſts, and retract it when covered with theſe inſects, which conſtitute their principal food. The firſt of theſe ant-eaters is called by the Braſilians *tamandua-guacu*,

† The middle ant-eater has a long ſlender noſe, bending a little down, ſmall black mouth and eyes, and ſmall upright ears. The bottoms of the fore-feet are round, with four claws on each, and five on the hind-feet. The hair is ſhining, hard, and of a pale yellow colour; along the middle of the back, and on the hind-legs, it is duſky. On each ſide of the neck, there is a black line, which croſſes the ſhoulders, and meets at the end of the back. The tail is covered with longer hair than the back, is taper, and bald at the end. The length, from noſe to tail, is one foot ſeven inches, and that of the tail ten inches; *Pennant's Synopſ. of Quad. p.* 332.

Tamandua-i; *Piſon. Hiſt. Braſil. p.* 321. *Marcgr. p.* 225. *Raii Synopſ. Quad. p.* 242.

Tamandua minor; *Piſo. Braſil. p.* 320. *Barrere, Hiſt. Franc. Equinox. p.* 162.

Tamandua-guacu; *Nieuhoff, p.* 19.

Myrmecophaga roſtro longiſſimo, pedibus anticis tetradactylis, poſticis pentadactylis, cauda fere nuda; *Briſſon. Quad. p.* 16.

Myrmecophaga tetradactyla, palmis tetradactylis, plantis pentadactylis, cauda calva; *Linn. Syſt. Nat. p.* 52.

‡ The leaſt ant-eater has a conic noſe, bending a little down; ſmall ears, hid in the fur; two hooked claws on the fore-feet, the exterior much the largeſt, and four on the hind-feet. The head, body, limbs, and upper part of the ſides of the tail are covered with long, ſoft, ſilky hair, or rather wool, of a yellowiſh brown colour. The length, from noſe to tail, is ſeven inches and a half, and that of the tail eight and a half, the laſt four inches of which, on the under ſide, are naked. The tail is thick at the baſe, and tapers to a point; *Pennant's Synopſ. of Quad. p.* 333.

Le Fourmiller; le plus petit Fourmiller; le petit mangeur de Fourmis; animal Americain que les naturels de la Guiane appellent *Ouatiriouaou*.

Tamandua

guacu, or *great tamandua*, to which the French inhabitants of America have given the name of *tamanoir*. From the end of the muzzle to the origin of the tail, it is about four feet in length. The head is from fourteen to fifteen inches long, and the tail about two feet and a half, covered with coarſe hair more than a foot in length. The muzzle is immoderately long, the neck ſhort, the head narrow, the eyes ſmall and black, the ears roundiſh, the tongue thin, more than two feet long, and, when retracted, it folds up in the mouth. The legs exceed not a foot in length, thoſe before being a little longer and thinner than thoſe behind. The feet are round. The fore-feet have four claws; and the two middlemoſt are largeſt. Thoſe behind have five claws. The colour of the hairs, both on the body and tail, is a mixture of black and white. The hair on the tail is diſpoſed in the form of a plume, which the animal, when he wants to ſleep, or to defend himſelf from rains or the heat of the ſun, turns on his back, and it covers his whole body. The long hairs of the

Tamandua minor flaveſcens; *Barrere, Hiſt. Franc. Equinox. p.* 163.

Tamandua ſive Coati Americana alba altera; *Seba, vol.* i. *p.* 60. *tab.* 37. *fig.* 3.

Myrmecophaga didactyla, palmis didactylis, plantis tetradactylis, cauda viloſa; *Linn. Syſt. Nat. p.* 51.

Myrmecophaga roſtro brevi, pedibus anticis didactylis, poſticis tetradactylis; *Briſſon. Quad. p.* 17.

The little ant-eater; *Edwards's Gleanings, p.* 20.

tail and body are not round through their whole extent, but flat at the extremities, and feel dry to the touch, like withered herbs. When irritated, he gives a briſk agitation to his tail; but, when walking at eaſe, he allows it to trail and ſweep the ground over which he paſſes. The hairs on the anterior parts of his body are ſhorter than thoſe on the poſterior: The latter are turned backward, and the former forward. The anterior parts are alſo whiter than the poſterior. There is a black ſtripe upon the breaſt, which ſtretches along the ſides, and terminates on the back near the thighs. The hind-legs are nearly black, and thoſe before almoſt white, with a large black ſpot about the middle. The great ant-eater runs ſo ſlow, that a man can eaſily overtake him in the chace. His feet ſeem leſs fitted for running than for climbing, and ſeizing cylindrical bodies; for he takes ſuch a forcible hold of a branch or a ſtick, that it is impoſſible to make him quit it.

The ſecond of theſe animals, or the middle ant-eater, is called ſimply *tamandua* by the Americans. He is much ſmaller than the former, being only about eighteen inches from the extremity of the muzzle to the origin of the tail. His head is ſix inches in length. His muzzle is long, and crooked downward. The tail is ten inches long, and naked at the point. The ears are erect, and an inch in length. The tongue is round, eight inches long, and placed in a kind of groove or canal within the lower jaw. The height

height of the legs exceeds four inches; and they are of the ſame form, and furniſhed with the ſame number of claws, as the great ant-eater. He climbs, and adheres firmly to the branches, like the former ſpecies, and runs or walks equally ill. Neither can he ſhelter himſelf with his tail; becauſe it is too ſhort, and part of it is bare. When he ſleeps, he conceals his head under his neck and fore legs.

The third ſpecies is called by the natives of Guiana *ouatiriouaou*. To diſtinguiſh it from the two former, we have given it the appellation of the *leaſt ant-eater*. It is much ſmaller than the middle kind; for it exceeds not ſix or ſeven inches from the extremity of the muzzle to the origin of the tail; the head is two inches long, and the muzzle is proportionally ſhorter than that of the middle ant-eater. The tail, which is ſeven inches in length, curls downward at the extremity, where it is naked. The tongue is narrow, a little compreſſed, and very long. It has almoſt no neck. The head is thick in proportion to the body. The eyes are placed low, at no great diſtance from the corners of the mouth. The ears are ſmail, and concealed by the hair. The fore legs are only three inches long, and their feet have but two claws, the outmoſt of which is much thicker and longer than the inmoſt. There are four claws on the hind feet. The hair on the body is about nine inches long, ſoft, and of a brilliant colour, being a mix-

ture of red, with a bright yellow. The feet are not fitted for walking, but for climbing, and laying hold of objects. The animal mounts upon trees, and fuſpends himſelf on the branches by the extremity of his tail.

Of this genus, we know only the three ſpecies above deſcribed. M. Briſſon mentions, from Seba, a fourth ſpecies, under the name of the *long-eared ant-eater*. But this ſpecies ſeems to be extremely ſuſpicious; for, in Seba's enumeration of the ant-eaters, he ſays expreſsly, 'We 'have, in our cabinet, *ſix ſpecies* of ant-eaters.' He deſcribes, however, only five; and among theſe five he places the *yſquiepatl*, or ſtifling weaſel, an animal not only of a different ſpecies, but of a genus very remote from that of the ant-eaters; ſince it has teeth *, a flat ſhort tongue like that of other quadrupeds, and approaches very near to the weaſel kind. Of theſe ſix ſpecies, pretended to be preſerved in the cabinet of Seba, there remain only four; for the yſquiepatl, which is the fifth, is by no means an ant-eater, and he makes no mention of the ſixth, unleſs the author intended to rank the ſcaly lizard under this genus, which appears not from his deſcriptions.

* Vapulavit aliquando optimus autor de nominibus propriis, ſi yſquiepatl ſeu vulpeculam Mexicanam, tamanduam dixit; p. 66. Quaſi aliquam omnino ſpeciem, canis ſeptentrionalis fere æmulam, maxilla inferiore craſſa et rotunda, binis inſignibus dentibus armata, cum tamen de ſex diverſis ſpeciebus ſit profeſſus, quod omnes dentibus careant; *Klein, de Quadrup. p.* 43.

deſcriptions. The ſcaly lizard feeds upon ants; he has a long muzzle, a narrow mouth, without any apparent teeth, and a long, round tongue. Theſe characters are common to the ſcaly lizard and ant-eaters. But the former differs from all other quadrupeds by the ſingularity of having its body covered with large ſcales, inſtead of hair. Beſides, it is an animal peculiar to the warm climates of the Old Continent; while the ant-eaters, whoſe bodies are covered with hair, are found only in the ſouthern regions of the New World. There remains, therefore, but four ſpecies, inſtead of ſix announced by Seba; and, of theſe four, only one is recogniſable from his deſcriptions, which is our third or leaſt ant-eater, to whom Seba has given but one claw to each fore foot *, inſtead of two. The other three are ſo ill deſcribed, that it is impoſſible to diſtinguiſh

* Fig. 3. *Tamandua, or another white American coati.* This animal is totally different from the preceding (he means that of table 37. fig. 2. See the following note). The head is much ſhorter, and the ears much ſmaller. The eyes are a little larger, and the inferior part of the muzzle ſomewhat longer. Their tongues are more ſimilar, both of them being fitted for ſwallowing ants. The ſhoulders are large, the body thick and ſhort, and *the fore feet are armed with one large hooked claw.* The hind legs and feet reſemble thoſe of an ape. Its white woolly hair is ſhorter than that of the preceding; and the ſame may be ſaid of its criſped tail. This animal is reckoned the rareſt of its ſpecies. The negroes of Surinam called it *coati*, and relate, that, when apprehended, it rolls itſelf up, with the feet ſo cloſely attached to each other, that it is impoſſible to force them aſunder. It dies in a moment, when immerſed in ſpirit of wine, or in the liquor *kilduivel*; *Seba, vol.* i. *p.* 60. *plate* 37. *fig.* 3.

 their

their true ſpecies. I thought it proper to tranſcribe theſe deſcriptions entire, not only to prove what I have advanced, but to give an idea of what credit is due to this writer. The animal he calls *tamandua murmecophage d'Amerique*, *tom.* i. *p.* 60. *tab.* 37. *fig.* 2. has no relation to any of the three of which we are here treating. To be convinced of this fact, we have only to read the author's deſcription *. The ſecond, which he

* *Tamandua murmecophage d'Amerique.* This animal is very common in the Weſt Indies; but the only one we have ſeen was brought from the Eaſt Indies. Several naturaliſts have entertained marvellous ideas concerning this creature. Some imagined it to be the *leo formicarius*, others the *formica leo*, the *formica vulpes*, the *formica lupus*, &c. M. Poupart, in the *Mem. de l'Acad. Royale des Sciences, ann.* 1704, p. 235. remarks, that this animal was gray, and made ſnares, like a ſpider, for entangling ants; but this compariſon ſeems not to be juſt. Baſtamantanus, who has written a book upon the reptiles mentioned in the Bible, regards the *murmeco leo*, another name for this animal, as a ſpecies of beetle called the *horned beetle*, and which is denominated the *flying ſtag* by the Germans. (*All this, we perceive, is very important and very uſeful in the deſcription of a quadruped.*) But, continues the author, all theſe deſcriptions, and ſeveral others, expreſs not the nature of this animal, the figure of which we have given from the original. It is covered with ſoft woolly hair, has a ſhort neck, broad ſhoulders, a long narrow head and muzzle, from which iſſues a long tongue, adapted for ſeizing and ſwallowing ants. The wiſdom of the Creator has furniſhed theſe animals with the neceſſary organs for collecting food agreeable to their taſte. The fore paws have each, *beſide the ordinary toes, three other toes*, which have grown above the others, and are armed with hooked claws, the largeſt of which is on the middle toe. It is with theſe that they ſcrape the earth, and pierce the ants neſts. The noſtrils, which are placed very near

he mentions under the name of the *tamandua-guacu* of Brasil, or the *bear which eats the ants* *, p. 65. tab. 40. fig. 1. This is a vague and equivocal

near the mouth, are ſtrait, rough, and furniſhed with hair. They diſcover the retreats of the ants by the ſcent. The ears are oblong, or pendulous. The hind feet, as in the bear, are divided into five toes, armed with long crooked claws. The tail, which is long and buſhy, terminates in a point, and they uſe it, like the monkeys, in fixing themſelves to the branches of trees. The teſtes of the males are concealed within the ſkin. The ants, both large and ſmall, become a prey to theſe animals, which, in their turn, are uſed by men as a medicine; *Seba, vol.* i. *p.* 60. *tab.* 37. *fig.* 2.—From ſuch a deſcription nothing can be learned: To apply it to the ant-eaters, as Linnæus has done, to give, at the ſame time, this animal three toes on the fore feet, beſides the ordinary three, and to make theſe grow above the others, are abſurdities ſo glaring, as to throw diſcredit upon the whole narration.

* *Tamandua-guacu*, of Braſil, *or the bear that eats the ants.* This is the largeſt ſpecies we have ever ſeen. Marcgrave calls it *tamandua-guacu*, and Cardan, *urſus formicarius*, or the *bear that eats the ants.* The body is long; the ſhoulders are broad and high; the head is very long; the muzzle gradually tapers to a point; and the noſtrils are large and open: The tongue, which it thruſts out to ſeize the ants, *about the eighth part of a cubit*, terminates in a round button. The ears are long and *pendulous.* The eyes are pretty large, and defended by thick hairs. The muzzle is long, wrinkled, and garniſhed with hair. The reſt of the body is covered with long, thick hairs, ſimilar to hogs briſtles, but become fine and woolly near the ſkin, and their colour is a bright cheſnut. The hair on the belly is of a deeper brown. Under the tail, which is long, and terminates in a point, the colour of the hair is a bright yellow. The female, whoſe figure we have given, has eight paps, three on each ſide of the belly, and two between the fore feet. Witneſſes worthy of credit relate, that the females bring forth, at every litter, as many young as they have paps, in which they reſemble the ſwine, *who never bring forth many at a time, unleſs they have a great number of paps.*

vocal language. I agree, however, with Klein * and Linnæus, that it may be the true tamandua-guaca, or great ant-eater; but ſo miſerably deſcribed and repreſented, that Linnæus † has united,

paps. Both the fore and hind feet are larger than thoſe deſcribed in fig. 2. of the preceding table. They uſe for food the largeſt kinds of ants.

We have in our cabinet *ſix ſpecies of ant-eaters,* who all differ from each other in the figure of the body, head, feet, and claws. The tamandua repreſented in fig. 2. *(Note, He is here ſpeaking of the yſquiepatl, which differs more from the tamandua than a cat from a dog)* is a fourth part leſs than the former; its head, ears, and eyes, are alſo ſmaller. His fore foot has only a ſingle claw, which is ſtrong and hooked. The hind foot has three toes and three claws. The hair is ſoft, woolly, and coloured like that of a young hare. The figure of the fifth ſpecies of tamandua is the ſame. The colour of the hair is a pale red on the back, mixed with a ſilvery white, and a yellowiſh aſh-colour on the belly. This ſpecies has four paps, two under the fore and two under the hind legs. *(This ſpecies, being of the ſame figure with that which precedes it, muſt, therefore, be a ſpecies of yſquiepatl, and not of the tamandua.)* The ſixth ſpecies has a long muzzle, and ears erect like thoſe of the fox. None of theſe ſpecies have teeth; *Seba, vol.* i. *p.* 65. *tab.* 40. *fig.* 1.—It is impoſſible to comprehend what the author ſays, or what he means by the ſixth ſpecies. We only perceive that he clearly contradicts himſelf, when he tell us, that none of theſe ſpecies have teeth, ſince the yſquiepatl, which is *nominatim* included among the ſix, has a great number of teeth. From ſuch examples, we may form a judgment of this author and his work. It is a ſubject of regret, that men who make cabinets of natural objects, are not better informed, and that, to gratify their inſignificant vanity, and enhance the value of their collections, they undertake the publication of deſcriptions, which are always replete with ſuch numerous exaggerations and blunders, that the correction of them would require more time than the authors beſtow on the compoſition of their voluminous works.

* Klein de Quadrup. p. 45.

† Linn. Syſt. Nat. p. 51.

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under one ſpecies, Seba's firſt and ſecond animals, namely, that of tab. 37. fig. 2. and that of tab. 40. fig. 1. M. Briſſon has conſidered the laſt as a diſtinct ſpecies; but I know not whether the eſtabliſhing of this ſpecies be better founded, than the reproach he throws upon M. Klein for confounding it with that of the great ant-eater. The only reproach which M. Klein ſeems to merit is for adding, to a good deſcription that he has given of this animal, the falſe remarks of Seba. In fine, the third of theſe animals, of which we find a figure in Seba, tom. ii. p. 48. tab. 47. fig. 2. is ſo ill deſcribed, that, notwithſtanding my confidence in the judgment of M. Linnæus and Klein, this animal, from Seba's figure and deſcription, can never be referred to the *tamandua-i*, or middle ant-eater. I would beg of them to peruſe the deſcription * a ſecond time, and then form their judgment. Diſcuſſions of

* *The little American tamandua*, or *the ant-eater delineated along with a neſt of theſe inſects*. See how it embraces with its fore claws the neſt of ants, upon which alone it feeds. Obſerve its oblong, thin, narrow head, its ſhort ears, its pointed muzzle, that conceals its long ſlender tongue, with which it catches and ſwallows the ants, as I propoſe to ſhow in the following plates (*no ſuch plates appear in his work*). The head, legs, feet, tail, and the fore part of the body, are ſtraw-coloured. The hind part of the body is reddiſh brown. Upon the breaſt there is a belt of ſilky hair, which gradually diſappears about the middle of the back. The tail is ſhort, almoſt naked, and curled inward; *Seba, vol.* ii. *p.* 48. *tab.* 47. *fig.* 2.—Note, The laſt characters in this deſcription agree pretty well with the tamandua; but, in general, it is ſo incorrect, that it determines nothing.

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this kind are always diſagreeable; but they often cannot be avoided in details of natural hiſtory. Before deſcribing an object, we muſt clear it, as far as poſſible, from all obſcurities, and mark the numberleſs errors that obſtruct the road to truth, at which it is often difficult to arrive.

From this critical examination, one thing appears to be certain, that three ſpecies of ant-eaters actually exiſt; that theſe three are the great, the middle, and the leaſt ant-eater, or the *tamanoir*, the *tamandua*, and the *fourmiller*; and that the fourth ſpecies, mentioned by M. Briſſon, under the name of the *long-eared ant-eater*, is very doubtful, as well as the other ſpecies deſcribed by Seba. We have ſeen the great and the leaſt ant-eater; their ſkins are in the royal cabinet, and they are very diſtinct ſpecies. But we have never ſeen the middle kind. Our deſcription of it ſhall be taken from Piſo and Margrave, the only authors who ought to be conſulted concerning this animal, becauſe all others have copied from them.

As to ſize of body, the *tamandua*, or middle ant-eater, may be conſidered as a mean proportional between the great and the leaſt kind. Like the great ant-eater, he has a long muzzle, and four toes on the fore feet; but, like the leaſt kind, his tail, by which he hangs on the branches of trees, is naked at the extremity. Both kinds, when ſuſpended on a branch, balance their bodies,

bodies, ſtretch their muzzles towards the hollows they diſcover in trees, thruſt in their long tongues, and quickly retract them, in order to ſwallow the inſects they have collected.

Theſe three animals, which are ſo different in ſize and proportions of body, have many common qualities, both in their ſtructure and manners. They all feed upon ants, and plunge their tongues into honey, and other liquid or viſcid ſubſtances. They readily pick up crums of bread, or ſmall morſels of fleſh. They are eaſily tamed. They can ſubſiſt a long time without any food. They never ſwallow all the liquor which they take for drink; for a part of it falls back through the noſtrils. They generally ſleep during the day, and move about in the night. They run ſo ſlowly, that a man may eaſily overtake them in an open field. Their fleſh, though its taſte be very diſagreeable, is eaten by the ſavages.

At a diſtance, the great ant-eater has the appearance of a fox; and, for this reaſon, ſome travellers have given him the name of the *American fox*. He has ſtrength ſufficient to defend himſelf againſt a large dog, or even the *jaguar* or Braſilian cat. When attacked, he at firſt fights on end, and, like the bear, annoys the enemy with the claws of his fore feet, which are very terrible weapons. He then lies down on his back, and uſes all the four feet; in which ſituation he is almoſt invincible, and continues the combat to the laſt extremity: Even when he

kills

kills his enemy, he quits him not for a long time after. He is enabled to reſiſt better than moſt animals; becauſe he is covered with long buſhy hair, his ſkin is remarkably thick, his fleſh has little ſenſation, and his principle of life is very tenacious.

All the three ant-eaters are natives of the warm climates of America, as Braſil, Guiana, the country of the Amazones, &c. None of them are to be found in Canada, or the northern regions of the New World, and therefore ſhould have no exiſtence in the Old Continent. Kolbe * and Deſmarchais †, however, mention theſe animals as natives of Africa; but they ſeem to have confounded the ſcaly lizard with the ant-eaters. Perhaps they have been miſled by the following paſſage in Marcgrave: '*Tamandua-guacu, Braſilienſibus, Congenſibus (ubi et frequens eſt)* umbulu *dictus*.' If by *Congenſibus* Marcgrave meant the natives of Congo, the inference of Kolbe and Deſmarchais, that the great ant-eater was found in Africa, would have been juſt. But Marcgrave certainly never ſaw this animal in Africa, ſince he acknowledges, that, even in America, he never ſaw more than ſtuffed ſkins of it. Deſmarchais ſays ſimply, that the great ant-eater is found both in Africa and America, without adding a ſingle circumſtance in proof of the fact. With regard to Kolbe, no dependence can be had on

* Deſcript. du Cap, par Kolbe, tom. iii. p. 43.
† Voyage de Deſmarchais, tom. iii. p. 307.

on his teſtimony; for a man who ſaw, at the Cape of Good Hope, elks and lynxes perfectly ſimilar to thoſe of Pruſſia, might alſo ſee the ant-eater in that climate. The ant-eaters are never mentioned by any author among the natural productions of Africa and Aſia. But all the travellers, and moſt of the hiſtorians of America, take particular notice of theſe animals. De Lery, de Laët *, le P. d'Abbeville †, Maffé ‡, Faber, Nieremberg ‖, and M. de la Condamine §, agree with Piſo, Barrere, &c. that the ant-eaters are natives of the warm climates of America. We muſt, therefore, conclude that Deſmarchais and Kolbe have been deceived, and that theſe animals exiſt not in the Old Continent.

SUPPLEMENT.

The Great Ant-eater.

DR. Maudhuit, a learned naturaliſt and phyſician, has ſent us from Guiana a well preſerved ſpecimen of the great ant-eater, which, though precisely

* Deſcript. des Indes Occidentales, par Jean Laët, p. 485. 556.

† Miſſion en l'Iſle de Maragnon, par le Pere d'Abbeville, p. 248.

‡ Hiſt. des Indes, par Maffé, traduit par de Pure, p. 71.

‖ Euſeb. Nieremberg, Hiſt. Nat. Antverpiæ, p. 190.

§ Voyage de la Rivière des Amazones, par M. de la Condamine, p. 167.

precifely the fame fpecies with that formerly defcribed, has a fhorter muzzle. The diftance between the eye and the ear is likewife lefs, and the feet are fhorter. On the fore feet there are four claws; the two middlemoft being very large, and the two outermoft very fmall. The hind feet have five black claws. The muzzle, as far as the ears, is covered with fhort brown hair. About the ears, the hair begins to grow longer; upon the fides of the body, it is two inches and a half in length, and as hard to the touch as that of the wild boar. The colour of the hair is a mixture of deep brown and a dirty white. This animal is three feet eleven inches long.

M. de la Borde, King's phyfician at Cayenne, has communicated the following obfervations regarding this animal;

' The ant-eater inhabits the woods of Guiana, ' where there are two fpecies. The indivi-' duals of the largeft kind fometimes weigh ' one hundred pounds. They run more flowly ' and fluggifhly than the hog. They fwim acrofs ' large rivers; and, on thefe occafions, it is eafy ' to knock them down with a ftick. In the ' woods, they are fhot with mufkets. They are ' not very common; and the dogs refufe to hunt ' them.

' The great ant-eater tears up with his claws ' the nefts of the wood-lice, that are every where ' to be found on the trees, which he climbs with ' eafe. It is dangerous to come near this ani-

' mal;

'mal; for his claws inflict the most dreadful 'wounds. He defends himself with success 'against the most ferocious animals of this Con-'tinent, as the jaguars, couguars, &c. whom he 'tears with his claws, the muscles and tendons of 'which are very strong. He kills many dogs; 'and therefore they refuse to hunt him.

'The great ant-eater is often seen in the large 'uncultivated savannahs. He is said to feed upon 'ants. In his stomach, which is larger than 'that of a man, I found a vast number of wood-'lice, that had been recently swallowed. The 'structure and dimensions of his tongue seem to 'indicate, that he may likewise feed upon ants. 'The female brings forth but one young, in 'holes of trees, near the root; and, at this 'period, she is dangerous even to men. The 'flesh of this animal is eaten by the common 'people of Cayenne; it is black, and has neither 'fat nor flavour. His skin is thick and hard; 'and his tongue is nearly of the same conical 'form with his muzzle.'

'The great ant-eater,' continues M. de la Borde, 'acquires not his full growth in less than 'four years. His respiration is performed sole-'ly by the nostrils. At the first vertebra which 'joins the neck to the head, the wind-pipe is 'very large; but it suddenly contracts, and 'forms a canal, which is continued, in the horn 'or trunk that serves the animal for an upper 'jaw, to the nostrils. This horn is a foot in 'length,

'length, being as long, at leaſt, as the reſt of the 'head. The wind-pipe has no opening into 'the mouth; and yet the aperture of the noſtrils 'is ſo ſmall, as hardly to admit a common quill. 'The eyes are very ſmall, and the animal ſees 'at a ſide only. His fat is extremely white. 'When he croſſes rivers, he carries his long tail 'on his back.'

Meſſrs. Aublet and Olivier aſſure me, that the great ant-eater feeds by means of his tongue only, which is covered with a viſcid humour, to which the inſects adhere. They add, that his fleſh is not bad.

THE MIDDLE ANT-EATER.

THE animal here repreſented, the ſkin of which is well preſerved in the royal cabinet, belongs to the ſpecies of *tamandua* or middle ant-eater. It differs from the *tamanoir*, or great ant-eater, not only in ſize, but in figure. Its head is proportionally much thicker. The eye is ſo ſmall that it exceeds not a line in breadth. The ears are round, and fringed above with large black hairs. The body, from the tip of the noſe to the origin of the tail, is thirteen inches long, and ten inches high. The hair on the top of the back is fifteen lines long, and that on the belly, which is of a dirty white colour, is of an equal

equal length. The tail, which is only ſeven inches and a half long, is wholly covered with long yellow hair, and variegated with bands or rings ſlightly tinged with black.

In all this deſcription, there are only two characters which accord not with that given of the tamandua by Marcgrave. 1. The tail is all garniſhed with hair; but that of Marcgrave was naked at the extremity. 2. In our tamandua, there are five toes on the fore-feet; in that of Marcgrave there were only four. But, as they agree in every other article, we muſt conclude the animal, whoſe figure is here repreſented, to be a variety of the tamandua, or middle ant-eater, if not preciſely the ſame ſpecies.

M. de la Borde ſeems to point out this animal under the name of the *little tamanoir*.

'It has,' ſays he, 'whitiſh hair, about two 'inches long, and weighs above ſixty pounds. 'It has no teeth; but its claws are very long. 'Like the former, it feeds during the night, and 'the female brings forth but one at a time. Its 'manners are alſo the ſame, and it frequents the 'large foreſts. Its fleſh is very good; but it is 'more rarely to be met with than the great 'tamanoir.'

I wiſh M. de la Borde had given a more particular account of this animal, that all uncertainty with regard to its ſpecies might have been removed.

THE

The Least Ant-eater.

WITH regard to this animal, M. de la Borde, at the ſame time, ſent me the following remarks: 'It has bright reddiſh hair, and ſomewhat of 'a golden colour. It feeds upon ants, which 'adhere to its long worm-ſhaped tongue. This 'animal is not larger than a ſquirrel. It moves 'ſlowly, and is eaſily taken. Like the ſloth, it 'fixes itſelf to a ſtaff; and, as it has no deſire to 'diſengage itſelf, it may be carried in this man-'ner wherever we pleaſe. It has no cry. We 'often find theſe animals adhering to branches 'by their claws. The females bring forth only 'one at a time in holes of trees, which they line 'with leaves. They feed in the night only. 'Their claws are very dangerous; and they 'claſp them ſo cloſe, that it is impoſſible to looſe 'them. They are not rare; but it is difficult to 'perceive them on the trees.'

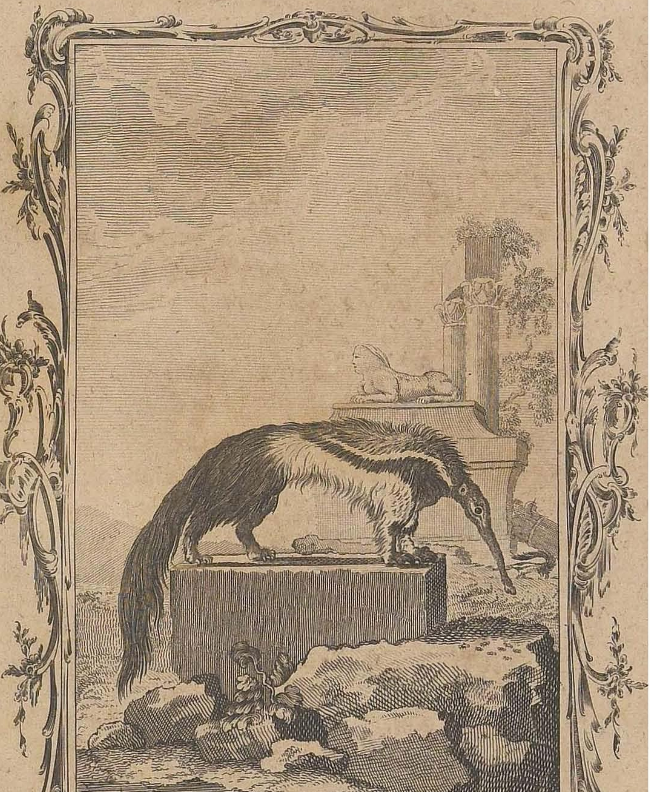
M. Voſmaër has made a very erroneous criticiſm on what I have ſaid concerning the leaſt ant-eater *.

'I muſt remark,' ſays he, 'though contrary to 'the opinion of M. de Buffon (ſee above, p. 349.), 'that laſt year M. Tulbagh ſent me an animal, 'under the name of *porc de terre*, which is the '*myrmecophagus* of Linnæus; ſo that Deſmar-

* Deſcript. d'un Grand Ecureuil Volant, p. 6.

'chais

Plate CL.



A. Bell Sculpt.

GREAT ANT-EATER.

Plate CLI.

A. Bell Sculp.t

LEAST ANT-EATER.

Plate CLII.

A. Bell Sculpt.

MIDDLE ANT EATER.

'chais and Kolbe were right in maintaining that 'this animal was found in Africa, as well as in 'America. If we form a judgment from the 'ſpecimen ſent me, which is preſerved in ſpirit 'of wine, appears to be new born, and is as large 'as a good pig, we muſt conclude the full grown 'animal to be of a conſiderable ſize. The fol-'lowing are its principal characters, as far as 'they could be remarked in an animal ſo young.

'The muzzle is pretty broad at the point, 'round, and ſomewhat compreſſed above. The 'ears are very broad, long, thin, pointed, and 'pendulous. On the fore feet there are four 'toes; the firſt and third are of equal length, 'the ſecond ſomewhat longer, and the fourth or 'exterior one a little ſhorter than the third. 'The four claws are very long, a little hooked, 'ſharp, and nearly of an equal ſize. On the 'hind feet there are five toes, the three inter-'mediate ones being nearly equal in length, 'and the two exterior much ſhorter; the claws 'are ſmaller, and the two exterior ones are 'leaſt. The tail, without being long, is thick, 'and terminates in a point. The two *myr-'mecophagi* of Seba, tom. i. tab. 3[illegible]. fig. 2. 'and tab. 40. fig. 1. are certainly the ſame, 'and differ only in colour, and the figures gi-'ven of them are good. This is a particular 'ſpecies, totally different from the *tamandua-'guacu* of Marcgrave, or the *tamanoir* of M. de 'Buffon.'

From this paſſage, it might be thought that I was deceived with regard to the animal repreſented by Seba, tab. 37. fig. 2. However, I have ſaid preciſely the ſame thing with M. Voſmaër; for I expreſſed myſelf in the following words: 'The animal called *tamandua*, *myrmecophage d'Amerique*, by Seba, tom. i. p. 60. tab. 37. fig. 2. has no reſemblance to any of the three of which we are here treating.' Now, the three American animals which I mentioned, were the great, middle, and leaſt ant-eaters. What M. Voſmaër remarks, therefore, contradicts nothing I have advanced; which amounts to this, that theſe three animals are peculiar to America, and not to be found in the Old Continent. This language is ſo preciſe, that M. Voſmaër can have nothing to oppoſe to it. If the *myrmecophagus* of Seba, tab. 37. fig. 2. is found in Africa, it only proves that Seba was deceived when he calls it the American *myrmecophagus*, but can have no effect upon what I have advanced, and ſtill perſiſt in maintaining, that the three ant-eaters are found in America, and not in Africa.

The SHORT TAILED *, and the LONG TAILED MANIS †.

THESE animals are commonly known by the name of *fcaly lizards*. We have rejected this denomination, 1. becaufe it is compounded; 2. becaufe it is ambiguous, and is applied

* The back, fides, and upper part of the tail of thefe animals, are covered with large ftrong fcales. The mouth is fmall, and the tongue long. They have no teeth.

The fhort tailed fcaly lizard has the back, fides, and legs, covered with blunt fcales, and briftles between each. There are five toes on each foot, and the tail is not longer than the body. The ears are not unlike the human. The chin, belly, and infide of the legs are hairy; *Pennant's Synopf. of Quad. p.* 329.

The Indians of the fouth of Afia call this animal *pangolin*, or *panggoeling*. The French who live in the Eaft Indies call it *lezard ecailleux*, and *diable de Java*. *Panggoeling*, according to Seba, fignifies, in the language of Java, *an animal which rolls itfelf up like a ball.*

Lacertus Indicus fquamofus; *Bontii Java, p.* 60.

Lezard Ecaillé; *Mem. pour fervir à l'Hift. des Animaux, part* iii. *p.* 87.

Armadillus fquamatus major Ceylanicus, feu Diabolus Tajovanicus dictus; *Seba, tom.* i. *p.* 88. *tab.* 53, 54. *Klein Quad. p.* 47.

Pholidotus pedibus anticis et pofticis pentadactylis, fquamis fubrotundis; *Briffon. Quad. p.* 18.

Manis pedibus pentadactylis; *Linn. Syft. Nat. p.* 52.

† The long tailed fcaly lizard has a flender nofe, which, with the head, is fmooth. The body, legs, and tail are guarded

plied to both ſpecies; 3. becauſe it is improper, theſe animals being not only of a different ſpecies, but of a different claſs from the lizards, which are oviparous reptiles; inſtead of which, the animals under conſideration are viviparous quadrupeds *.

All lizards are entirely covered with a ſmooth ſkin, variegated with ſpots which reſemble ſcales. But the ſhort and long tailed manis have no ſcales on the throat, breaſt, and belly. The long tailed manis, like other quadrupeds, has hair on all the inferior parts of the body; and the ſhort tailed manis has, on theſe parts, a ſmooth ſkin only, without hair. The ſcales which cover the other parts of both theſe animals adhere not entirely to the ſkin, but are ſtrongly fixed by their under part only. Like the quills

ed by long, ſharp pointed, ſtriated ſcales. The throat and belly are covered with hair. The legs are ſhort. There are four claws on each foot, one of which is very ſmall. The tail tapers a little, but ends blunt. The length, from noſe to tail, is fourteen inches and a half; and that of the tail is three feet four inches and a half; *Pennant's Synopſ. of Quad. p.* 328.

The Indian name of this animal is *phatagin*, or *phatagen*.

Lacertus ſquamoſus peregrinus; *Cluſii Exotic. p.* 374.

Scaly lizard; *Grew's Rarities, p.* 46.

Lacerta Indica Yvannæ congener; *Aldrov. de Quad. Digit. Vivipar. p.* 667.

Philodotus pedibus anticis tetradactylis, ſquamis mucronatis, cauda longiſſima; *Briſſon. Quad. p.* 19. *Note*, Both of theſe animals have five toes, or rather five claws, on each foot.

Manis tetradactyla; *Linn. Syſt. Nat. p.* 53.

* The author adopts the Eaſt Indian names, *pangolin*, and *phatagen*.

of

of the porcupine, they are moveable, and are elevated or depreſſed, according to the will of the animals. When irritated, they erect their ſcales, and particularly when they roll themſelves up like a ball. Theſe ſcales are ſo large, hard, and poignant, that they repel every animal of prey. They form an armour which wounds as well as reſiſts. The moſt cruel and famiſhed creatures, as the tiger, panther, &c. endeavour in vain to devour theſe animals. They trample upon, and toſs them about; but, whenever they attempt to ſeize them, they receive very dangerous and painful wounds. No animal of prey is able to face, cruſh, or ſuffocate them, although it loads them with its whole weight. The fox is afraid of the hedge-hog when rolled up; but he forces it to extend, by trampling on it with his feet. As ſoon as the head appears, he ſeizes it by the ſnout, and thus accompliſhes his purpoſe. But, of all animals, without excepting the porcupine, the armour of the manis is the moſt offenſive. When theſe animals contract their bodies, and preſent their armour, they brave the fury of all their enemies. Beſides, when rolled up, theſe animals aſſume not, like the hedge-hog, a globular figure: Their body, in contracting, takes the form of a clue; but their long thick tail remains without, and ſerves as a ring or belt to the body. This exterior part, by which it would appear the animals might be ſeized, defends itſelf; for it is

furniſhed,

furniſhed, both above and below, with ſcales as hard and ſharp as thoſe which cover the body; and, as it is convex above and flat below, and has nearly the figure of a half pyramid, the angular ſides are covered with ſharp erected ſcales; ſo that the tail ſeems to be ſtill more carefully defended than the body, the inferior parts of which are deprived of ſcales.

The ſhort tailed manis is larger than the long tailed kind. His fore feet are covered with ſcales to their extremity; but the feet of the long tailed ſpecies, and even a part of the fore legs, are covered with hair only. The ſcales of the former are larger, thicker, more convex, and leſs chamfered than thoſe of the latter, which are armed with three ſharp points, while thoſe of the ſhort tailed manis are not pointed, but uniformly ſharp. The long tailed manis has hair on the inferior parts of the body: The ſhort tailed kind has no hair under the body; but, between the ſcales which cover the back, there are ſome hairs as thick and long as hogs briſtles, which are wanting in the long tailed ſpecies. Theſe are all the eſſential diſtinctions that we have obſerved by examining the ſtuffed ſkins of both theſe animals, which differ ſo much from all other quadrupeds, that they have been regarded as a kind of monſters. The differences we have pointed out, being general and conſtant, authoriſe us to conclude the ſhort and long tailed manis to be diſtinct ſpecies. We recogniſed theſe

these relations and differences, not only by inspecting three subjects, but likewise by perusing all the remarks of travellers and naturalists.

The short tailed manis, when full grown, is from six to eight feet long, including the tail, which is nearly the length of the body, but appears to be proportionally shorter while the animal is young; the scales are also smaller and thinner, and of a paler colour; but, in the adult animal, their colour becomes deeper, and they acquire such a degree of hardness as to resist a musket ball. The long tailed manis, as formerly remarked, is much less than the short tailed species. Both of them have some relation to the great and middle ant-eaters; for they feed upon ants, have very long tongues, a narrow mouth, without any apparent teeth, very long bodies and tails, feet and toes nearly of the same size and figure, though different in number, both species of manis having five toes to each foot, while the ant-eaters have only four on the fore feet. The latter are covered with hair, and the former with scales; neither are they natives of the same Continent. The ant-eaters are found only in America, and the two species of manis in the East Indies and Africa, where they are called *quogelo** by the negroes, who eat the flesh of these animals,

* We find in the woods a quadruped which the negroes call *quogelo*. From the neck, to the extremity of the tail, it is covered with sharp scales, resembling the leaves of the artichoke. They are close, and so thick and strong as to defend it

animals, which they reckon delicate and wholesome, and use their scales for several purposes. In fine, these creatures have nothing disgusting about them but their figure. They are gentle and innocent, feeding only on insects. They run slowly, and cannot escape from a man, but by concealing themselves in holes of rocks, or in those they dig in the earth, where the females bring forth their young. They are two extraordinary species, not numerous, and very useless. The oddness of their form seems to be intended to constitute the last shade between the figure of quadrupeds and that of reptiles.

it against the claws and teeth of the most rapacious animals. It is perpetually chased, and easily overtaken, by the tigers and leopards. But, as its claws and mouth would be a feeble defence against the dreadful tusks and talons of these animals, Nature has taught it to roll itself up like a ball, by folding its tail under the belly, and contracting its body in such a manner as to present on all sides the sharp points of its scales. The tiger or leopard, when they turn the creature too rudely with their paws, receive such wounds as oblige them to retire. The negroes kill it with battons, sell the skin to the whites, and eat the flesh, which they say is white and delicate. Its tongue is enormously long, and covered with a viscid liquor. It goes in quest of ants nests, and the haunts of insects; extends its tongue, which it either pushes into their holes, or lays it flat upon the places where they pass. These insects, attracted by the odour, quickly run toward the tongue, remain entangled in the viscid liquor; and, when the tongue is properly loaded with them, the animal retracts it, and devours them. This creature is not mischievous. He never attacks any person, but, provided he can find a sufficient quantity of ants, is perfectly contented. The largest of this species that has been observed, is eight feet long, comprehending the tail, which is four feet; *Voyage de Desmarchais, tom.* i. *p.* 200.

Plate CLIII.

A. Bell Sculp.t

SHORT-TAILED MANIS.

Plate CLIV.

A. Bell Sculp.t

LONG TAILED MANIS.

THE ARMADILLO.

WHEN a quadruped is mentioned, the very name ſeems to convey the idea of an animal covered with hair. In the ſame manner, when we ſpeak of a bird or a fiſh, feathers and ſcales preſent themſelves to the imagination, and appear to be inſeparable attributes of theſe beings. Nature, however, as if ſhe intended to withdraw herſelf from all method, and to elude our moſt general views, contradicts our ideas and denominations, knows nothing of our arbitrary characters, and aſtoniſhes us ſtill more by her exceptions than by her laws. Quadrupeds, which ſhould be regarded as conſtituting the firſt claſs of animated nature, and are, next to man, the moſt conſpicuous creatures in this world, are, nevertheleſs, neither ſuperior in every reſpect, nor ſeparated, by permanent characters or attributes, from all other beings. The firſt character, that of having four feet, and from which their name is derived, is found among the lizards, frogs, &c. which differ ſo much from quadrupeds in every other article, that they have, with propriety, been thrown into a diſtinct claſs. The ſecond general property, that of being viviparous, belongs not excluſively to quadrupeds, but is common to them and the cetaceous animals. In

In fine, the third attribute, that of being covered with hair, which appears to be the leaſt equivocal, becauſe it is the moſt conſpicuous, exiſts not in ſeveral ſpecies which cannot be retrenched from the order of quadrupeds, ſince, with the exception of this character alone, their reſemblance to each other is complete: And, as theſe ſeeming exceptions of Nature are, in reality, but the ſhades ſhe employs to connect beings of the moſt remote kinds, we ought to ſeize theſe ſingular relations as often as they preſent themſelves. The armadillos, inſtead of hair, are covered, like the turtles, the lobſters, &c. with a ſolid cruſt. The manis is armed with ſcales ſimilar to thoſe of fiſhes. The porcupine carries a kind of prickly feathers, without vanes, but having quills like thoſe of birds. Thus, in the claſs of quadrupeds alone, and in the moſt conſtant and apparent character of theſe animals, that of being covered with hair, Nature varies by making them approach the three very different claſſes of birds, fiſhes, and the cruſtaceous tribes. Hence we ought never to judge of the nature of beings by a ſingle character; for it will always be imperfect and fallacious. Even two or three characters, though extremely general, are often inſufficient; and, as I have frequently remarked, it is only by the union of all the attributes, and an enumeration of all the characters, that a judgment can be formed concerning the permanent and eſſential qualities of the productions

ductions of Nature. Accurate deſcriptions, without any attempt toward definitions, a more ſcrupulous examination of the differences than of the ſimilarities, a particular attention to the exceptions, and even to the ſlighteſt ſhades, are the true guides, and, I will venture to affirm, the only means we poſſeſs of inveſtigating Nature. If the time loſt in framing definitions and methodical arrangements, had been employed in making good deſcriptions, we ſhould not, at this day, have found Natural Hiſtory in her infancy, but ſhould have had leſs difficulty in removing her ſwaddling cloths and her toys, and, perhaps, might have advanced her age; for we ſhould have written more for ſcience, and leſs againſt error.

But to return to our ſubject. Among viviparous quadrupeds, as we have ſeen, there are ſeveral ſpecies of animals which are not covered with hair. The armadillos alone conſtitute an entire genus, which includes a number of diſtinct ſpecies, and all of them are covered with a cruſt reſembling bone. This cruſt covers the head, neck, back, flanks, rump, and extends to the extremity of the tail. The cruſt itſelf is alſo covered with a thin, ſmooth, tranſparent ſkin. The only parts to which this cruſt extends not, are the throat, the breaſt, and the belly, which are covered with a granulated ſkin, like that of a deplumed hen; and, upon an accurate inſpection of theſe parts, we diſcover, in different places,

places, the rudiments of ſcales, of the ſame ſubſtance with the cruſt. Hence the ſkin of theſe animals, even where it is moſt flexible, has a tendency to become oſſeous; but the oſſification is completed in thoſe places only where the ſkin is thickeſt, as on the ſuperior and external parts of the body, and on the limbs. The cruſt conſiſts not of one piece, like that of the turtle, but is divided into ſeveral bands, connected to each other by membranes, which allow a certain degree of movement to this coat of mail. The number of theſe bands depends not, as has been imagined, on the age of the animal. The new born and the adult armadillo have the ſame number of bands, as appears by comparing the young with the old; and, though we cannot be certain that thoſe which have more or fewer bands never intermix or produce, it is at leaſt very probable, ſince the difference in the number of moveable bands is conſtant, that they are either diſtinct ſpecies, or permanent varieties, occaſioned by the influence of different climates. In this uncertainty, which time alone can remove, we have choſen to treat of all the armadillos under one article, enumerating, at the ſame time, each kind as if it were a particular ſpecies.

Le Pere d'Abbeville* appears to have firſt diſtinguiſhed the armadillos by different names, which have been adopted by moſt ſubſequent authors.

* Miſſion au Maragnon, par le Père d'Abbeville, p. 247.

authors. He has pointed out pretty clearly ſix ſpecies: 1. The twelve-banded armadillo, or *kabaſſou*. 2. The eight-banded, or *tatouète*. 3. The ſix-banded, or *encuberto* of Marcgrave. 4. The three-banded, or *tatu-apara*. 5. The eighteen-banded, or *cirquinçon*. 6. The nine-banded, or *cachichame*. The different ſpecies have been confounded by other travellers. But we have occaſion to borrow the deſcriptions of two kinds only, having ſeen the other four.

All the armadillos, except the eighteen-banded, have two bony ſhields, one on the ſhoulders, another on the rump. Each of theſe conſiſts of one ſolid piece. But the cuiraſs, which is likewiſe oſſeous, and covers the body, is divided tranſverſely into more or fewer moveable bands, connected by a flexible ſkin. But the armadillo with eighteen bands has one ſhield only, which is upon his ſhoulders. The rump, inſtead of a ſhield, is covered with moveable bands, ſimilar to thoſe above mentioned. We ſhall now deſcribe each ſpecies particularly, according to the number of bands.

THE THREE BANDED ARMADILLO *.

CLUSIUS is the firſt author who deſcribes this animal; and, though his deſcription was taken from a drawing only, it is eaſy to perceive, from the remarkable characters of having three moveable bands on the back, and a ſhort tail, that it is the ſame ſpecies of which Marcgrave has given a good deſcription, under the name of *Tatu apara*. The head is oblong, and almoſt pyramidal; the eyes are ſmall, the ears ſhort and rounded, and the top of the head is covered with a helmet conſiſting of one piece. On all the feet there are five toes. The two middle claws of the fore feet are very large, the two lateral ones

* It has ſhort, but broad rounded ears. The cruſt on the head, back, and rump, is divided into elegant pentangular, tuberculated ſegments. There are three bands in the middle, five toes on each foot, and the tail is ſhort; *Pennant's Synopſ. of Quad. p.* 323.

Armadillo, ſeu tatu genus alterum; *Cluſii Exot. p.* 109.

Tatu-apara; *Marcg. p.* 232. *Raii Synopſ. Quad. p.* 234.

Tatu ſeu armadillo; *Piſon. Hiſt. Nat. Braſil. p.* 100.

Tatu ſeu armadillo orientalis, lorica oſſea toto corpore tectus; *Seba, tom.* i. *p.* 62. *tab.* 38. *fig.* 2 *et* 3. *Note.* This animal is found in America, and not in the Eaſt Indies.

Tatus Geſneri. Tatu apara Marcgravii; *Barrere, Hiſt. Franc. Equinox. p.* 163.

Daſypus tricinctus, cingulis tribus, pedibus pentadactylis; *Linn. Syſt. Nat. p.* 53.

Cataphractus ſcutis duobus, cingulis tribus; *Briſſon. Quad. p.* 24.

ones ſmaller, and the fifth, or exterior one, is the leaſt. The claws of the hind feet are ſhorter and more equal. The tail exceeds not two inches in length, and is wholly covered with a ſhell or cruſt. The body is a foot long, and about eight inches over at the broadeſt part. The back, or cuiraſs, is divided into four joints, and compoſed of three tranſverſe moveable bands, by which the animal is enabled to bend its body and to roll itſelf up like a ball. The ſkin which forms the joints is very flexible. The ſhields which cover the ſhoulders and rump conſiſt of pentangular pieces, very equally ranged. The three moveable bands between the two ſhields are compoſed of ſquare or oblong pieces, and on each piece there is a number of lenticular ſcales of a yellowiſh white colour. Marcgrave adds, that, when the creature lies down to ſleep, or when touched by any perſon, he gathers his feet together, puts his head below his belly, and makes the whole body ſo perfectly round, that he has more the appearance of a ſea-ſhell than of a land animal. This contraction is effected by means of two large muſcles on the ſides of the body; and it is with difficulty that the ſtrongeſt man can force an extenſion with his hands. Piſo and Ray have added nothing to Marcgrave's deſcription. But it is ſingular, that Seba, who has given us a figure and deſcription nearly the ſame with thoſe of Marcgrave, ſhould not only not mention this author, but aſſert, with confidence,

dence, ‘ that this animal is unknown to the na-‘ turaliſts; that it is extremely rare; that it is ‘ found in the moſt remote countries of the Eaſt ‘ Indies *,’ &c. whilſt, in fact, this Braſilian armadillo is excellently deſcribed by Marcgrave, and the ſpecies as common as any other, not indeed in the Eaſt Indies, but in America, where it is very frequent. The only real difference between the deſcription of Seba and that of Marcgrave is, that the latter gives the animal five toes to each foot, and the former only four. One of them muſt be wrong; for they both evidently deſcribe the ſame animal.

Fabius Columna † has deſcribed and given figures of the dried cruſt of an armadillo, contracted in the form of a ball, which appears to have had four moveable bands. But, as this author was totally ignorant of the animal whoſe ſkin or ſhell he deſcribes; as he knew not the very name of the *armadillo*, though mentioned by Belon more than fifty years before, but gave it the compound appellation of *cheloniſcus*; beſides, as he acknowledges that the cruſt he deſcribes had been paſted together, and that ſome pieces were wanting, we have no proper authority to

* Hunc remotiſſimi et maxime verſus orientem ſiti Indiæ loci proferunt.——— ——Animal hocce rarum admodum et haud vulgare eſt, nec ejus mentionem ab ullo autorum factam reperimus, &c.; *Seba, vol.* i. *p.* 62.

† Aquatil. et terreſtr. animal. Obſ. Fab. Columna auctore, p. 15. tab. 15. fig. 1, 2, 3.

pronounce,

pronounce, as our modern nomenclators have done *, that an armadillo with four moveable bands has an exiſtence in nature, eſpecially as no notices have been communicated by any other naturaliſt, concerning this animal, ſince the imperfect and ſuſpicious account given by Fabius Columna in the year 1606. If it did exiſt, it would certainly have found its way into ſome of our cabinets, or been obſerved by travellers.

THE SIX-BANDED ARMADILLO †.

THIS armadillo is larger than the former. The top of the head, the neck, body, limbs, and tail, are covered with a very hard oſſeous cruſt, compoſed

* Daſypus quadricinctus, cingulis quatuor; *Linn. Syſt. Nat. p.* 54.

Cataphractus ſcutis duobus, cingulis quatuor; *Briſſon. Regn. Anim. p.* 39.

† The cruſt of the head, ſhoulders, and rump, is formed of angular pieces. It has ſix bands on the back, between which, and alſo on the neck and belly, are a few ſcattered hairs. The tail is not the length of the body, very thick at the baſe, and tapers to a point. There are five toes on each foot; *Pennant's Synopſ.*

Tatou; *Obſ. de Belon, p.* 211. Though Belon makes no mention of the number of bands, this tatou, from inſpection of the figure, is the ſix-banded ſpecies.

Tatus, ſeu Echinus Braſilianus; *Aldrov. de Quad. Digit. Vivip. p.* 478. *fig. p.* 480.

Tatu et Tatupeba Braſilianis. Encuberto Luſitanis. In dorſo ſeptem ſunt diviſuræ, cute fuſca intermedia; *Marcgr. Hiſt.*

composed of pretty large pieces, most elegantly placed. Each of the two shields on the shoulders and rump consists of one piece. There is, indeed, beyond the shield on the shoulder, and near the head, a moveable band which enables the animal to bend his neck. The shield on the shoulders consists of five parallel rows, which are composed of pieces that have five or six angles, with a kind of oval figure in each. The cuirass on the back, or the part between the two shields, is divided into six bands, connected to each other, and to the shields, by seven junctures of a thick flexible skin. These bands consist of large square or oblong pieces. On the skin of the joints there are several whitish hairs, similar to those on the throat, breast, and belly. All the inferior parts of the body, instead of a hard crust, are covered with a granulated skin. The shield on the rump has a fringed border, the mosaic work of which resembles that of the moveable bands; the rest is composed of pieces very similar to those of the shield on the shoulders. The crust of the head is long, broad, and consists of one piece, as far

Hist. Brasil. p. 231. *Note,* The words *divisuræ,* as well as *juncturæ* and *commissuræ,* signify the intervals between the bands, and not the bands themselves. Seven intervals are necessary to make six bands.

Tatu, sive armadillo prima Marcgravii; *Raii Synops. Quad. p.* 233.

Dasypus sexcinctus, cingulis senis, pedibus pentadactylis; *Linn. Syst. Nat. p.* 54.

Cataphractus scutis duobus, cingulis sex; *Brisson, Quad. p.* 25.

far as the moveable band on the neck. The muzzle is ſharp, the eyes ſmall and ſunk, and the tongue narrow and pointed. The ears, which are naked, having neither hair nor cruſt, are ſhort and brown, like the ſkin of the dorſal junctures. There are eighteen teeth in each jaw, and five toes on each foot, with pretty long, rounded, and rather narrow than broad claws. The head and muzzle nearly reſemble thoſe of a pig. The tail is thick at its origin, and gradually tapers toward the point, where it is very thin, and rounded. The colour of the body is a reddiſh yellow. The animal is commonly plump and fat; and the penis of the male is very conſpicuous. He digs the earth with great eaſe by the aſſiſtance of his ſnout and claws. He lives in his burrow during the day, and comes out in the night only to ſearch for food. He drinks often, and feeds upon fruits, roots, inſects, and birds, when he can ſeize them.

THE EIGHT-BANDED ARMADILLO*.

THIS armadillo is not ſo large as the ſix-banded ſpecies. The head is ſmall, the muzzle ſharp, the ears erect, and pretty long, and the tail

* This armadillo has upright ears, two inches long; ſmall black eyes, eight bands on the ſides, four toes on the fore-feet, and five on the hind. The length, from noſe to tail, is about

tail is proportionably longer, and the limbs ſhorter than thoſe of the ſix-banded armadillo. The eyes are ſmall and black; there are four toes on the fore, and five on the hind-feet; the head is covered with a helmet, the ſhoulders and rump with two ſhields, and the body with a cuiraſs compoſed of eight moveable bands connected to each other and to the two ſhields by nine junctures of flexible ſkin. The tail is likewiſe covered with eight moveable rings of cruſt, and nine joints of flexible ſkin. The colour of the cuiraſs on the back is an iron-gray, and the flanks and tail are of a whitiſh gray mixed with ſpots of iron-gray. The belly is covered with a whitiſh, granulated ſkin, interſperſed with ſome hairs. The head of the individual deſcribed by Marcgrave was three inches long, the ears nearly two, the legs about three, the two middle toes of the fore-feet one inch, and the claws

about ten inches, and that of the tail nine; *Pennant's Synopſ. of Quad. p.* 325.

Tatus; *Geſner. Hiſt. Quad. p.* 935.

Ayotochtli; *Hernand. Mex. p.* 314.

Tatu ſeu armadillo; *Cluſii Exotic. p.* 330.

Tatou; *Deſcript. des Indes Occident. par Laët. p.* 486.

Tatuete Braſilienſibus, Verdadeiro Luſitanis; *Marcgr. Hiſt. Braſil. p.* 231. *Raii Synopſ. Quad. p.* 233.

Tatou ou armadille; *Hiſt. Gen. des Antilles, par le Pére du Tertre, tom.* ii. *p.* 298.

Cataphractus ſcutis duobus, cingulis octo; *Briſſon. Quad. p.* 26.

Daſypus ſeptemcinctus, cingulis ſeptenis, palmis tetradactylis, plantis pentadactylis; *Linn. Syſt. Nat. p.* 54. *Amœn. Acad. tom.* i. *p.* 560. *Note,* This animal has eight bands.

half

half an inch. The length of the body, from the neck to the origin of the tail, was ſeven inches, and that of the tail nine. The cruſt of the ſhields was interſperſed with prominent white ſpots of the ſize of lentils. The moveable bands were marked with triangular figures. This cruſt is not very hard; for the ſmalleſt ſhot pierces it and kills the animal, whoſe fleſh is white, and extremely delicate.

THE NINE-BANDED ARMADILLO *.

NIEREMBERG's deſcription of this animal is extremely imperfect; thoſe of Wormius and Grew are much better. Wormius's individual

* This ſpecies has long ears. The cruſt on the ſhoulders and rump is marked with hexangular figures. There are nine bands on the ſides, diſtinguiſhed by tranſverſe cuneiform marks. The breaſt and belly are covered with long hairs. There are four toes on the fore-feet, and five on the hind. The tail is long and taper. The length of the whole animal is three feet; *Pennant's Synopſ.*

Armadillo; *Worm. Muſ. p.* 335.

Tatu porcinus, Schildverkel; *Klein. Quad. p.* 48.

The pig-headed armadillo; *Grew's Rarities, p.* 18. *Raii Synopſ. Quad. p.* 233.

Tatou ou Armadillo; *Nouv. Voy. aux Iſles de l'Amerique, tom.* ii. *p.* 387.

Tatu ſeu Armadillo Americanus; *Seba, tom.* i. *p.* 45. *tab.* 29. *fig.* 1. *Note,* Seba, in his deſcription, mentions ten bands, though there are only nine in the figure.

Cachicame, Cachicamo, Atuco. che de chuca, &c. the Indian

vidual was an adult, and one of the largeſt of the ſpecies; that of Grew was younger and ſmaller. We ſhall only give their deſcriptions as far as they correſpond with our own ſpecimen. Beſides, it is probable that the nine-banded armadillo is not a diſtinct ſpecies from the eight-banded; for, in every other reſpect, they ſeem to have a perfect reſemblance to each other. We have two eight-banded armadillos, which are dried, and appear to be males; and we have ſeven or eight with nine bands; one of them, which is entire, is a female, the others are ſo diſfigured in drying, that the ſex is not diſtinguiſhable. It would appear, therefore, that the eight-banded is the male, and the nine-banded the female. This is only a conjecture, which I mention here, becauſe, in the following article, we ſhall ſee two armadillos, one of which has more rows on the rump-ſhield than the other, and yet their reſemblance is ſo great, that this difference may depend ſolely on ſex; for it is not improbable, that a greater number of rows and of moveable bands may be neceſſary for facilitating the geſtation and delivery of the females.

Indian names; *Hiſt. Nat. de l'Orénoque, par Gumilla, tom.* iii. *p.* 225.

Daſypus novemcinctus, cingulis novem, palmis tetradactylis, plantis pentadactylis; *Linn. Syſt. Nat. p.* 54.

Cataphractus ſcutis duobus, cingulis novem; *Briſſon, Quad. p.* 27.

American armadillo; *Phil. Tranſ. vol.* lvii. *tab.* 7.

Armadillo ſeu Aiotochtli; *Nieremberg. Hiſt. Nat. Peregr. p.* 158.

In

In the individual defcribed by Wormius, the head was five inches long, from the end of the muzzle to the ears, and eighteen inches from the ears to the origin of the tail, which laft was a foot in length, and compofed of twelve rings. In an individual of the fame fpecies defcribed by Grew, the head was three inches, the body feven and a half, and the tail eleven. The proportions of the head and body correfpond very well; but the difference in the tail is too confiderable; and, it is probable, that, in Wormius's individual, the tail had been broken, for it ought to have exceeded a foot in length. As in this fpecies the tail tapers to a point as fmall as an awl, and is at the fame time very brittle, it is rare to preferve a fpecimen with the tail entire, as in that defcribed by Grew.

THE TWELVE-BANDED ARMADILLO *.

THIS animal feems to be the largeft of the armadillo kind. Its head is thicker and broader, and its muzzle not fo flender as thofe of the

* This armadillo has broad upright ears. The cruft on the fhoulders is marked with oblong pieces, and that of the rump with hexangular ones. It has twelve bands on the fides, five toes, with very large claws, on the fore-feet, and five leffer on the hind. The tail is fhorter than the body, and there are fome fcattered hairs on the body; *Pennant's Synopf. of Quad. p.* 326.

Tatu

the other ſpecies. The legs and feet are alſo thicker, and the tail has no cruſt, a peculiarity which ſufficiently diſtinguiſhes it from all the others. It has five toes on all the feet, and twelve diſtinct moveable bands. The ſhield on the ſhoulders conſiſts of four or five rows only, each of which is compoſed of pretty large quadrangular pieces. The moveable bands are likewiſe compoſed of large and almoſt ſquare pieces. Thoſe which compoſe the rump-ſhield are nearly ſimilar to thoſe on the ſhoulders. The helmet on the head conſiſts of large, irregular pieces. Between the joints of the moveable bands, and in other parts of the armour, there are ſome hairs, like hog's briſtles. Upon the breaſt, belly, legs, and tail, we perceive the rudiments of ſcales, which are round, hard, and poliſhed, like the reſt of the cruſt, and, round theſe, are ſmall tufts of hair. The pieces which compoſe the helmet, the two ſhields, and the cuiraſs, being proportionably larger and fewer in number in the twelve-banded than in the other armadillos, entitle us to conclude that it is the largeſt of the

Tatu ſive armadillo *Africanus*; *Seba, tom* *p.* 47. *tab.* 30. *fig.* 3, 4. *Note*, This armadillo, like all the other ſpecies, is a native of America, and not of *Africa*.

Cataphractus ſcutis duobus, cingulis duodecim; *Briſſon. Quad. p.* 27.

Tatus major moſchum redolens. Tatuete Braſilienſibus, Marcgravii. Tatu-kabaſſou; *Barrère, Hiſt. Franc. Equinox. p.* 163.

Kabaſſou is the name given to this ſpecies by the natives of Cayenne.

kind.

kind. In that repreſented in the figure, the head was ſeven inches long, and the body twenty-one. But we are uncertain whether that repreſented in the former plate belongs to the ſame ſpecies. They are ſimilar in many reſpects, particularly in having twelve moveable bands. But they likewiſe differ in ſo many articles, that it is perhaps raſh to aſcribe theſe differences to ſex alone.

THE EIGHTEEN-BANDED ARMADILLO *.

MR. Grew firſt deſcribed this animal from a ſkin preſerved in the cabinet of the Royal Society. All the other armadillos have two ſhields, one on the ſhoulders, and another on the rump. But the eighteen-banded ſpecies has only one ſhield, which is upon the ſhoulders. It has obtained the name of the *weaſel armadillo*, becauſe

* This ſpecies has a very ſlender head, and ſmall erect ears. The cruſt on the ſhoulders and rump conſiſts of ſquare pieces. There are five toes on each foot. The length, from noſe to tail, is about fifteen inches, and that of the tail five and a half; *Pennant's Synopſ. of Quad. p.* 327.

Cirquinçon or *Cirquinchum*, the name commonly given to the armadillos in New Spain.

Tatou ouinchum; *d'Abbeville Miſſions au Maragnon, p.* 248.

The weaſel-headed armadillo; *Grew's Rarities, p.* 19.

Tatu muſtelinus; *Raii Synopſ. Quad. p.* 225.

Daſypus unicinctus, tegmine tripartito, pedibus pentadactylis; *Linn. Syſt. Nat. p.* 53.

Cataphractus ſcuto unico, cingulis octodecim; *Briſſon. Quad. p.* 23.

its

its head reſembles that of the weaſel. From Grew's deſcription of this animal, we find that the body was about ten inches long, the head three, and the tail five. The legs were from two to three inches in length; the forehead was large and flat; the eyes were ſmall, and the ears an inch long. It had five toes on each foot, and large claws, of an inch long, on the three middle toes, the others being ſmaller. The armour of the head and that of the legs were compoſed of round ſcales, about a quarter of an inch in diameter. The armour of the neck conſiſted of one piece, formed of ſmall ſquare ſcales. The ſhield on the ſhoulders conſiſted alſo of one piece, compoſed of ſeveral rows of ſimilar ſmall ſquare ſcales. Theſe rows on the ſhield, in this as well as in all the other ſpecies, are continuous, and adhere by a ſymphyſis. The reſt of the body, from the ſhield on the ſhoulders to the tail, is covered with moveable bands ſeparated from each other by a flexible ſkin. Theſe bands are eighteen in number. The anterior ones are largeſt, and compoſed of ſmall ſquare and oblong pieces. The poſterior conſiſt of round and ſquare pieces; and the extremity of the armour, near the tail, is of a parabolic figure. The firſt half of the tail is covered with ſix rings, compoſed of ſmall ſquare pieces; and the ſecond half, as far as the point, is covered with irregular ſcales. The breaſt, the belly, and the ears, are naked, as in the other ſpecies. Of all the armadillos,

madillos, from the moveable bands which extend to the tail, it ſhould appear that this ſpecies has the power of contracting and rolling itſelf up like a ball with the greateſt eaſe.

We have taken this deſcription, as well as Mr. Ray, from Grew. M. Briſſon has alſo followed Mr. Ray, and given a good deſcription of this animal, which he calls ſimply the *armadillo*. But it is ſingular, that Linnæus, though he had the deſcriptions of Grew and Ray before his eyes, ſhould mention this ſame animal as having but one band *, when it has no leſs than eighteen. This notion proceeds from a blunder as evident as that of miſtaking the *tatu, ſeu armadillo Africanus* of Seba, for the *tatu muſtelinus* of Grew, which, even from the deſcription of theſe authors, are very different animals. It is equally certain, that the animal deſcribed by Grew is a real exiſting ſpecies, as the exiſtence of that of Seba, at leaſt as he deſcribes it, is doubtful. In his eſtimation, this African armadillo has the whole armour of its body divided into three parts †. If this were true, inſtead of many bands, the back and ſides would be covered with one piece bounded by the ſhields on the ſhoulders and rump. This paſſage is the foundation of Linnæus's error,

* Daſypus unicinctus, tegmine tripartito, pedibus pentadactylis; *Linn. Syſt. Nat. p.* 53.

† Scutum oſſeum toto incumbens corpori tripartitum eſt; *Seba, tom.* i. *p.* 47.

who

who calls the animal *Dasypus unicinctus, tegmine tripartito*.

All the armadillos are natives of America. Before the discovery of the New World, they were totally unknown. They are never mentioned by the ancients; modern travellers uniformly speak of them as animals peculiar to Mexico, Brasil, Guiana, &c. and no person ever pretends to have seen any of the species either in Asia or Africa. Some voyagers have indeed confounded the armadillos of America with the manis, or scaly lizard, of the East Indies. Others have imagined that they existed on the West coasts of Africa, because they have sometimes been transported from Brasil to Guiney. Belon *, who wrote more than two centuries ago, and is the first who gave a description and figure of an armadillo from a skin he had seen in Turkey, tells us, that it came from the

* "With regard to the animal I formerly mentioned under the name of *tatou*, it is always brought from Guiney and the New World; and, though it is not taken notice of by the ancients, I have given a figure of it.

"Nature has armed this creature with a hard crust and large scales, like a corslet, by which means the inwards and flesh are easily taken out, without injuring its natural figure, From these circumstances, it may be carried to any distance. and, accordingly, it is not uncommon in our cabinets. It may be called the Brasilian hedge-hog; for it retires into its scales, as a hedge-hog does into his bristles. It exceeds not the size of a middling pig. It is indeed a species of hog, having the same legs, feet, and muzzle. It has been seen alive in France, and it feeds upon grain and fruits;" *Observ. de Belon, p.* 211.

New

New Continent. Oviedo *, De Lery †, Gomara ‡, Thevet ||, Antoine Herrera §, P. d'Abbeville ¶, François Ximenes, Stadenius **, Monard ††, Joſeph Acoſta ‡‡, de Laët ||||, and all the modern hiſtorians, mention theſe animals as natives of South America. Of all the writers I have quoted, Piſo alone has advanced, but without any authority, that the armadillos are found in the Eaſt Indies §§, as well as in America. He has probably confounded the ſcaly lizards with the armadillos. The former are called *armadillos* by the Spaniards. This error has been adopted by our nomenclators and deſcribers of cabinets, who have not only admitted the armadillos into the Eaſt Indies, but into Africa, though none of them ever exiſted in thoſe parts

* Oviedo, Summarium Ind. Occid. cap. xxii.

† Hiſt. d'un Voyage fait en la Terre du Braſil, par Jean de Lery, p. 154.

‡ Gomara; Hiſt. Mexican. &c.

|| Singularités de la France Antarctique, par Thevet, chap. liv.

§ Deſcript. des Indes Occident. par Ant. de Herrera, p. 252.

¶ Miſſion en l'Iſle de Maragnon, par le P. C. d'Abbeville, Capucin, p. 248.

** Joann. Staden. Res geſtæ in Braſilia, &c.

†† Nicolai Monardi, Simplicium Medic. Hiſt. p. 330.

‡‡ Hiſt. Nat. des Indes, par Joſeph Acoſta, p. 198.

|||| Deſcript. des Indes Occident. par Jean Laët, chap. v. p. 485 et 486. et chap. xv. p. 556.

§§ Cum in Occidentalis non ſolum, ſed et Orientalis Indiæ partibus frequens adeo ſit hoc inuſitatæ conformationis animal, non mirum ſi vel nomine, vel magnitudine, figura quoque ſubinde variet; *Piſon, Hiſt. Nat. Braſil.* p. 100.

of

of the world, except ſuch as were tranſported from America.

The climate and country of theſe animals, therefore, are not equivocal: But it is more difficult to determine the ſize of each kind. With this view, we have compared the ſkins of a great number preſerved in the royal and other cabinets: We have alſo compared all the deſcriptions of authors with our own, without being able to draw any certain concluſion. It only appears, that the twelve and ſix-banded armadillos are the largeſt, and that the three, eight, nine, and eighteen-banded ſpecies are the leaſt. The head of the larger kinds is more ſolid and harder than that of the ſmaller; the pieces of which it is compoſed are larger and fewer in number; the moveable bands encroach leſs upon each other; and the ſkin and fleſh are harder, and not ſo good. Piſo ſays, that the fleſh of the ſix-banded armadillo is not eatable *; and Nieremberg aſſures us that it is noxious †. Barrere tells us, that the twelve-banded armadillo has a ſtrong odour of muſk. All authors agree, that the fleſh of the three-banded, and particularly that of the eight-banded ſpecies, is as good as that of a pig.

* Prima et maxima *(ſpecies)* tatupeba, cujus deſcriptioni ſuperſedeo, utpote non edulis; *Piſon. Hiſt. Nat. Braſil. p.* 100.

† Quædam innoxia et gratiſſimi alimenti ſunt, alia noxia et venenata, ut vomitu ac flatu alvi ſincopem inducant.——Diſtinguuntur teſtarum ſeu lamiñarum numero: Innoxia octonis, noxia ſenis conſtant; *Nieremberg, Hiſt. Nat. Peregr. p.* 59.

They likewiſe remark, that all the ſmall kinds frequent the plains and marſhes; and that the largeſt ſpecies are found in dry and elevated places only *.

All theſe animals have the faculty of contracting their bodies in the form of a ball with more or leſs facility. When contracted, the defect of their armour is moſt conſpicuous in thoſe which have feweſt moveable bands. In this ſituation, the three-banded ſpecies preſents two large voids between the ſhields and the armour of the back. None of them can aſſume a form ſo perfectly round as the hedge-hog; they have rather the figure of a globe very much flattened at the poles.

The ſingular cruſt with which they are covered is a real bone, compoſed of ſmall contiguous pieces, which, without being moveable or articulated, except at the joints of the bands, are united by a ſymphyſis, and may all be ſeparated from each other when heated in a fire. When the animal is alive, theſe ſmall pieces, both in the ſhields and moveable bands †,

* In the woods of Oronock and Guiana, there are armadillos four times larger than thoſe of the plains; *Hiſt. Nat. de l'Oronoque, par Gumilla, tom.* ii. *p.* 7.

† "The nine-banded armadillo is very ſenſible. When his ſcales are preſſed, he complains, and rolls himſelf up like a ball. I remarked, that all the rows, beſide the movement by which they joint into each other, have another along the ſpine of the back, which enables them to extend and enlarge themſelves," &c.; *Nouv. Voy. aux Iſles de l'Amerique, tom.* ii. *p.* 388.

obey,

obey, in ſome meaſure, its motions, eſpecially that by which it contracts itſelf. If this were not the caſe, it would not poſſibly roll itſelf up. Theſe pieces are of different figures in different ſpecies, and are always arranged with as much regularity as the moſt elegant moſaic work. The thin pellicle which covers the cruſt, is a tranſparent ſkin, which has the effect of a varniſh to the whole body. This ſkin riſes a good deal, and even changes the reliefs of the moſaic work, which are very different when it is removed. Beſides, this oſſeous cruſt is only a cover, totally independent of the internal parts of the animal's body, whoſe bones, and other organs, are conſtructed like thoſe of all other quadrupeds.

The armadillos, in general, are inoffenſive animals, and do no miſchief, unleſs they are allowed to enter the gardens, where they eat melons, potatoes, and other roots and pot-herbs. Though natives of the warm climates of America, they can live in temperate regions. Some years ago, I ſaw one in Languedoc, which was fed in the houſe, and went about freely without doing any harm. They walk quickly; but they can neither run, nor leap, nor climb trees; ſo that they can never eſcape thoſe who purſue them. Their only reſources are to conceal themſelves in their holes, or, if too diſtant from their retreats, to endeavour to dig a hole before they are ſeized; for the mole digs not more quickly than the ar-

madillo.

madillo. Before being totally concealed, they are ſometimes caught by the tail, when they make ſuch a powerful reſiſtance *, that the tail is left in the hands of the enemy. To prevent mutilating them in this manner, it is neceſſary to widen the holes, and then they are taken without reſiſtance. Whenever they are ſeized, they roll themſelves up, and never extend till they are placed near a fire. Their cruſt, though hard and rigid, is ſo ſenſible, that, when touched by the finger, the animal feels the impreſſion, and inſtantly contracts itſelf. When their holes are deep they are forced out by ſmoke or by water. They are ſaid to remain in their holes during a third part of the year †. It is certain, however, that they never come out but during the night, when they go in queſt of food. The armadillo is hunted with ſmall dogs ‡, by whom they are ſoon overtaken. They contract them-

* The nine-banded armadillos, when their head and part of the body are concealed in the hole, believe themſelves to be ſafe; and, indeed, they have nothing to fear, unleſs the following expedient be uſed to drag them out. The Indian arrives, and ſeizes the animal by the tail, which is very long. The armadillo opens his ſcales, and attaches them ſo ſtrongly to the walls of his hole, that the Indian may pull off the tail, but cannot force the animal from his retreat. In this caſe, the hunter tickles him with a ſtick or the end of his bow, which makes the animal contract his ſcales, and then he is taken without difficulty; *Hiſt. Nat. de l'Orénoque, par Gumilla, tom. iii. p. 226.*

† Hiſt. Gen. des Antilles, par le Père du Tertre, tom. ii. p. 298.

‡ Hiſt. Nat. des Antilles, p. 123.

 ſelves

ſelves long before the dogs come up with them; and in this ſtate they are ſeized and carried off. When on the top of a precipice, they eſcape both the dogs and the hunter; for they contract, and allow themſelves to roll down like a bullet *, without breaking their cruſt, or receiving any injury.

Theſe animals are fat, and very fruitful. The male exhibits, by his external organs, great generative powers. The female is ſaid to produce every four months †; and, accordingly, the ſpecies is very numerous. As they make excellent eating, they are hunted in every manner. They are eaſily taken with ſnares, that are laid on the edges of waters and other moiſt places, which they always frequent. They never remove far from their holes, which are very deep, and which they endeavour to regain upon every alarm. They are ſaid not to be afraid of the bite of the rattle-ſnake ‡, though it is as dangerous as that of the viper. It is ſaid that they live in peace with theſe reptiles, which are often found in their holes. The ſavages employ the cruſt of the armadillo for ſeveral purpoſes. They paint it with different colours, and make of it baſkets, boxes, and other ſmall veſſels. Monard, Ximenes, and other writers, aſcribe great medicinal powers to different parts of theſe animals. They aſ-

* Hernandes, Hiſt. Mexic. p. 314.

† Hiſtoire Naturelle de l'Orénoque, par Gumilla, p. 225.

‡ Nieremberg, Hiſt. Nat. Peregr. p. 159.

ſure us that the cruſt reduced to a powder, and taken internally, even in a ſmall doſe, is a powerful ſudorific; that the hip-bone, pulveriſed, cures the venereal diſeaſe; that the firſt bone of the tail, applied to the ear, reſtores hearing to the deaf, &c. We can give no credit to theſe extraordinary powers. The cruſt and bones of the armadillo are of the ſame nature with the bones of other animals. Effects ſo marvellous can only be produced by imaginary virtues.

SUPPLEMENT.

OUR original figure of the ſix-banded armadillo was taken from a preſerved cruſt. The figure now repreſented was drawn from the life by M. de Séve, who, at the ſame time, ſent me the following deſcription:

'The male is fourteen inches long, without 'reckoning the tail, and correſponds pretty 'well with the deſcription given in your work. 'However, in your deſcription, it is ſaid the 'ſhoulder-ſhield conſiſts of five parallel rows of 'ſmall pentangular pieces, with an oval in each. 'But theſe characters ſeem to vary; for, in the 'animal I have drawn, the ſhoulder-ſhield is 'com-

'composed of six parallel rows, of which the
'small pieces are irregular hexagons. The
'rump-shield consists of ten parallel rows, and
'the small pieces are narrow squares. The
'rows near the tail lose their square form, and
'become more round. The tail, a part of which
'was broken off, is four inches and a half in
'length; but, in the drawing, I have made it
'six inches. In walking, it carries the tail high,
'and a little crooked. The trunk is covered
'with an osseous crust as well as the body. The
'trunk has six unequal rows, composed of small
'irregular hexagons. The head is three inches
'ten lines long, and the ears one inch three
'lines. The eye, instead of being sunk, as re-
'marked in your history, is indeed very small,
'but the globe is prominent, and well defended
'by eye-lids. The body is very fat, and the
'skin of the belly is wrinkled, and full of small
'tubercles, from which issue a number of pretty
'long white hairs. The crust, on the broadest
'part of the body, is six inches seven lines.
'The fore legs are two inches two lines long,
'and those behind three inches four lines. The
'fore claws are very long, the longest being one
'inch three lines, the next one inch two lines,
'and the smallest ten lines. The length of the
'hind claws is at most half an inch. The legs
'are covered, as far as the claws, with a yel-
'lowish scaly skin. When the animal walks
'he supports himself on the tips of the claws
'of

'of the fore feet. His penis, when drawn 'out in a ſtate of repoſe, is ſix inches ſeven 'lines long, near four lines thick, and muſt 'augment conſiderably during its erection. 'When the penis ſtretches, it lies upon the 'belly like a ſnail, leaving a ſpace of a line or 'two between each circumvolution. I have 'been told, that, when theſe animals copulate, 'the female lies on her back to receive the 'male. The one I have deſcribed was only 'eighteen months old.'

M. de la Borde remarks, that there are two ſpecies of armadillos in Guiana. The largeſt is black, and weighs from eighteen to twenty pounds. The other, which is brown, or rather iron-coloured, has three claws of different lengths. Its tail is ſoft, and without any armour, being covered with a ſimple ſkin. It is much ſmaller than the other, and weighs about three pounds only.

'The large armadillos,' ſays M. de la Borde, 'bring forth eight, and ſometimes ten at a litter, in their holes, which they dig very deep. 'When attempts are made to unkennel this animal, he labours hard to render the hole ſtill 'deeper, and deſcends almoſt perpendicularly. 'He goes out in the night only, and feeds 'upon worms, woodlice, and ants. His fleſh is 'good, and, in flavour, ſomewhat reſembles that 'of a pig. The ſmall iron-coloured armadillo 'brings forth only four or five young; but ſhe

'digs ſtill deeper, and is more difficult to catch. 'When it rains, theſe animals go out during 'the day; but, in fair weather, they remain in 'their holes till night. They are always ſolitary; 'and they are known to be in their holes by a 'number of flies which follow their ſcent. 'When the hunter digs in order to ſeize them, 'they dig likewiſe; and, by throwing the 'earth behind, ſhut up the mouths of their holes 'ſo completely, that no ſmoke can enter. The 'females bring forth in the beginning of the 'rainy ſeaſon.'

The large black armadillo of M. de la Borde may be referred to the twelve-banded ſpecies, which is the largeſt of all the armadillos; and the ſmall iron-coloured kind may be referred to the eight-banded armadillo, though M. de la Borde ſays, that its tail is naked, a fact which merits confirmation.

We have given a figure of an armadillo with nine moveable bands and a very long tail. Dr. William Watſon has deſcribed this armadillo *, of which the following is an extract. This animal was living in the houſe of Lord Southwell, and was brought from America. The figure, however, in the Philoſophical Tranſactions, was not drawn till after the animal's death, which is the reaſon why it is rough and hard, as it is in our figure. This animal

* Philoſophical Tranſactions, vol. liv. plate 7.

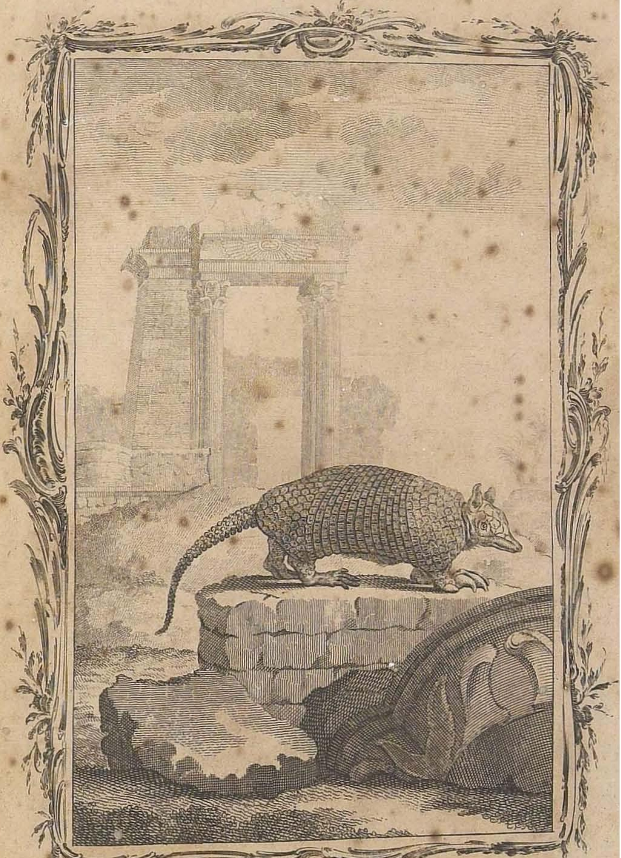
weighed

Plate CLV.

A Bell Sculp^t

NINE-BANDED ARMADILLO.

Plate CLVI.



A. Bell Sculpt.

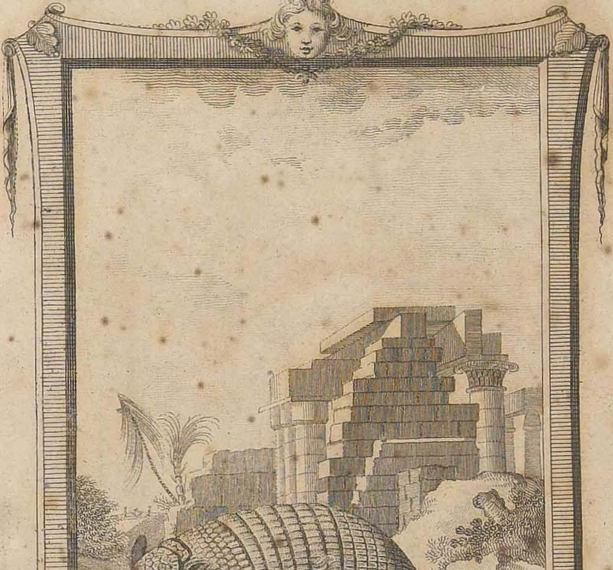
TWELVE-BANDED ARMADILLO.

Plate CLVII.

A. Bell Sculpt.

TWELVE-BANDED ARMADILLO.

Plate CLVIII.



A. Bell Sculp.t

SIX BANDED ARMADILLO.

Plate CLIX.

A. Bell Sculp.t

LONG TAILED ARMADILLO.

weighed ſeven pounds, and exceeded not the ſize of an ordinary cat. It was a male, and grew conſiderably while in Lord Southwell's poſſeſſion. It was fed with fleſh and milk, and refuſed to eat grain or fruits. Thoſe who brought it from America aſſured us, that it dug a lodging for itſelf in the earth.

THE PACA, or SPOTTED CAVY*.

THE paca, or ſpotted cavy, is an animal peculiar to the New World. It digs holes in the earth, like the rabbit, to which it has often been compared, though there is very little reſemblance between them. It is even larger than the hare. Its body is thicker and plumper; the head is round and the muzzle ſhort. It is

* The upper jaw is longer than the lower. The noſtrils are large, the whiſkers long, the ears ſhort and naked. The hairs are ſhort and hard; the colour of the upper part of the body is a dark brown; the ſides are marked, lengthwiſe, with lines of gray ſpots. The belly is white; in ſome, perhaps young ones, the ſides and ſpots are of a pale yellow. There are five toes on each foot. It has only the mere rudiment of a tail. The length of the body is about ten inches. It is made like a pig, and in ſome places is called the hog-rabbit; *Pennant's Synopſ. of Quad. p.* 245.

Pag ou pague; *Hiſt. d'un Voyage au Braſil, par de Lery, p.* 157.

Paca Braſilienſibus; *Marcg. p.* 224. *Piſo, p.* 101.

Mus Braſilienſis magnus, porcelli pilis et voce, paca dictus, Marcgravii; *Raii Synopſ. Quad. p.* 226.

Cavia paca; *Klein. Quad. p.* 50.

Cuniculus major paluſtris, faſciis albis notatus: *Barrère, Hiſt. Franc. Equinox. p.* 152.

Cuniculus caudatus, auritus, pilis obſcure fulvis, rigidis, lineis ex albo flavicantibus ad latera diſtinctis; *Briſſon. Quad. p.* 99.

Mus paca, cauda abbreviata, pedibus pentadactylis, lateribus flaveſcente-lineatis; *Linn. Syſt. Nat. p.* 81.

very fat, and rather resembles a young pig * in figure, grunting, gait, and manner of eating; for it uses not, like the rabbit, its fore feet in carrying food to its mouth; and, like the hog, it digs the earth in quest of nourishment. It frequents the banks of rivers †, and is only found in the warm and moist places of South America. Its flesh is fat, and makes excellent food ‡. Even its skin is eat §, like that of a pig. For these reasons, this animal is in perpetual request. It is difficult

* Hoc genus animalia pilis et voce porcellum referunt, dentibus et figura capitis, et etiam *magnitudine* cuniculum; auribus murem; suntque singularia et sui generis; *Raii Synops. Quad. p.* 227. Mr. Ray might have added, that this animal resembles a pig still more in the figure of its body, in the taste and whiteness of its flesh, in fatness, and the thickness of its skin; and that it is larger than any rabbit.

† The pacas resemble pigs of two months old; and are very numerous about the banks of the river St. Francis; *Descript. des Indes Occident. par de Laët, p.* 484.

‡ The *pac* is the fattest of all our Cayenne animals, and its flesh is extremely good and well flavoured; *Voyage au Cayenne, par Ant. Binet, p.* 340. The *pak* is a well known species of rabbit; its flesh is much better than that of the agouti, or long-nosed cavy; *Barrère, Hist. Franc. Equin. p.* 185. The *pacs* of Brasil are large; their head and muzzle resemble those of cats; their skin is of a dull gray colour, spotted with white. Their flesh is very good and tender; *Descript. des Indes Occident. par Herrera, p.* 252.

§ The muzzle of the *paca* is round, like that of a cat: Its skin is black, and marked with some white spots. Not only the flesh, but the skin is delicious, tender, and in great request with the luxurious; *Hist. des Indes, par Maffée, p.* 70. Paca magnitudine est porcelli, pingui et crasso corpore, et circiter decem digitos longo: Capite instar cuniculorum nostrorum crasso; auribus pilis nudis et paulum acutis: Nares habet amplas;

difficult for the hunters to take him alive. When surprised in his hole, which they lay open both before and behind, he defends himself, and even bites in a cruel manner. His skin, though covered with coarse short hair, makes a very good fur *, because it is regularly spotted on the sides. These animals produce often, and in great numbers; many of them are destroyed by men and beasts of prey; and yet the species is always numerous. It is a native of South America, and is found in no part of the Old Continent.

amplas; os inferius brevius superiori: Rimam instar leporis, non tamen fissura; barbam felinam, seu leporinam prolixam, et post oculos pone aures iterum tales pilos: Crura priora paulo breviora posterioribus; in pedibus digiti *quatuor*: Cauda brevissimo ut Aguti; pili corporis sunt umbræ coloris, breves, et ad tactum duri. In lateribus autem secundum longitudinem maculas habet cinereas, in ventre albicat. Cibum oblatum pedibus non tenet ut Aguti, sed in terra positum devorat, instar suis, atque ad eundem pene modum grunnit. Carnem habet eximiam et pinguem, ita ut non habeat opus lardo quando assatur, unde Lusitanis *caca real* vocatur illorum venatio; *Marcgrav. Hist. Brasil. p.* 224. *Note;* Marcgrave errs when he gives this animal four toes only to each foot; for it is certain that there are five toes on all the feet; the inmost is, indeed, so small as to be distinguishable by the claw only.

* The *pag*, or *pague*, is an animal about the size of a small spaniel. Its head is of a clumsy make; its flesh has nearly the same taste as that of veal; and its skin, being beautifully spotted with white, gray, and black, makes a very rich fur; *Hist. d'un Voyage au Brasil, par de Lery, p.* 157.

At Maragnon we find animals called *pacs*; which are round, and somewhat larger than the *coatis*. Their head is thick and short, their ears small, and their tail not longer than a little finger. Their skin is beautiful, being covered with short hair, variegated with black and white spots; *Mission au Maragnon, par le P. Claude d'Abbeville, p.* 251.

SUPPLEMENT.

THE deſcription of the ſpotted cavy, given in the laſt article, was taken from a young ſubject, which had not acquired one half of its growth. I have ſince had one ſent me, which, when it arrived, was larger than the former, and, from the month of Auguſt 1774, to the 28th day of May 1775, during which period it was nouriſhed in my houſe, its ſize continued to augment. I now proceed to give an account of its mode of living and acting, from the remarks of the Sieur Trécourt.

When provided with a wooden cage or box, this animal remains perfectly tranquil during the day, eſpecially when plentifully ſupplied with food. He ſeems even to have an affection for his retreat, as long as the day laſts; for, after feeding, he retires ſpontaneouſly into it. But, when night approaches, by perpetual reſtleſſneſs and agitation, and by tearing the bars of his priſon with his teeth, he diſcovers a violent deſire to get out. Nothing of this kind happens during the day, unleſs he has occaſion for ſome natural evacuation; for he cannot endure the ſmalleſt degree of dirtineſs in his little apartment; and,

and, when about to void his excrements, he always retires to the moſt diſtant corner he can find. When his ſtraw begins to ſmell, he often throws it out, as if he meant to demand freſh litter. This old ſtraw he puſhes out with his muzzle, and goes in queſt of rags or paper to replace it. But his attachment was not confined to his cage. All obſcure corners ſeemed to be agreeable to him; and he often formed a new neſt for himſelf in preſſes which he found open, or under the kitchen grate. Wherever he eſtabliſhed a new abode, nothing but force could make him leave it. In this animal, which was a female, the propenſity to cleanlineſs was ſo ſtrong, that, a large male rabbit being ſhut up with her when ſhe was in ſeaſon, ſhe took an averſion to him the moment he voided his excrement in their common apartment. Before this event, ſhe had received him ſo cordially, that ſomething was expected; ſhe even made conſiderable advances, for ſhe licked his noſe, ears, and body; and ſhe allowed him to take almoſt the whole food which was given her. But, as ſoon as the rabbit had infected the cage with his ordure, ſhe retired into the bottom of an old preſs, where ſhe made a bed of paper and rags, and returned not to her old lodging till ſhe ſaw it neat, and freed from the unclean gueſt which had been preſented to her.

The ſpotted cavy is eaſily accuſtomed to a domeſtic life. Unleſs induſtriouſly irritated, he is gentle

gentle and tractable. He is fond of adulation, and licks the hands of the perſon who careſſes him. He knows thoſe who take care of him, and readily diſtinguiſhes their voices. When gently ſtroaked on the back, he ſtretches himſelf out, lies down on his belly, by a ſmall cry expreſſes his acknowledgment, and ſeems to aſk a continuance of the favour. When ſeized in a rough manner, however, he makes violent efforts to eſcape.

His muſcles are large and ſtrong; and yet his ſkin is ſo ſenſible, that the ſlighteſt touch is ſufficient to excite in him the moſt lively emotions. This great ſenſibility, though generally accompanied with ſweetneſs of temper, produces ſometimes, when too much irritated, or when a diſagreeable object is preſented, the moſt violent paroxyſms of paſſion. The bare ſight of an unknown dog is ſufficient to produce this effect in the ſpotted cavy. When confined in his cage, he has been obſerved, upon the entrance of a ſtrange dog into the chamber, to bite the door, and make an effort to force it. At firſt, it was believed that he never wiſhed to go out, unleſs when preſſed by natural neceſſities. But, when at full liberty, we were ſurpriſed to ſee him dart out ſuddenly upon an innocent dog, which he bit very ſeverely. In a few days, however, he became familiar with this dog. People with whom he is unacquainted, if they irritate him, he treats in the ſame manner. But he never

bites

bites those who have the care of him. He has an aversion to children, whom he always pursues. His passion is expressed by chattering his teeth, and is always preceded by a kind of grunting.

This animal sits often on his posteriors, and sometimes remains long in this situation. He has the air of combing his head and whiskers with his paws, which he continually licks and moistens with his saliva. In this operation, he often uses both paws at a time; he then scratches all the parts of his body which he can reach with his fore feet, and completes his dressing by scratching with his hind paws such parts as cannot be reached by the fore ones.

This animal, notwithstanding, is gross and corpulent. His body is neither delicate, nor smooth, nor nimble, but rather heavy and lurid, having nearly the gait of a small hog. He runs seldom, and, when he does, it is always with a bad grace. He has no vivacious movement, but that of leaping upon the furniture, or upon such things as he wishes to seize and carry off. He resembles the hog still farther in the whiteness and thickness of his skin, which cannot be drawn off, because it adheres to the flesh.

Though our animal had not acquired his full growth, he was eighteen inches long in his natural contracted situation; but, when he extended himself, he was near two feet from the point of the muzzle to the extremity of the body; while

while the ſpotted cavy, deſcribed in the original work, exceeded not ſeven inches five lines; which difference, as there was no other between the two animals, muſt be aſcribed entirely to that of their ages.

The height before, in the individual we are now deſcribing, is ſeven inches, and behind about nine inches and a half; ſo that, in walking, the hind part of the body appeared always higher than the head. The poſterior part of the body is alſo the thickeſt, being nineteen inches and a half in circumference, while that of the anterior part is only fourteen inches.

The body is covered with ſhort, coarſe, thinly ſcattered hairs, of a duſky colour, and deeper on the back. But the belly, the breaſt, the throat, and the interior parts of the legs, are of a dirty white. This animal is rendered exceedingly remarkable, by five longitudinal rows of white ſpots, which run along the body, and approach each other at their extremities.

The head, from the noſe to the top of the front, is near five inches long, and very convex. The eyes are large, prominent, of a browniſh colour, and about two inches diſtant from one another. The ears are roundiſh, about eight lines in length, and nearly of an equal breadth at the baſe; they are plaited, and covered with a down ſo fine as to be almoſt imperceptible either to the touch or the ſight. The end of the noſe is broad, nearly of a black colour, and divided

divided like that of the hare. The noſtrils are very large. The animal has conſiderable ſtrength and addreſs in the management of this organ; for I have often ſeen him raiſe the portcullis of his cage with it. The under jaw is an inch ſhorter, and much narrower than the upper. On each ſide, and toward the baſe of the upper jaw, there is a kind of longitudinal fold, garniſhed with hair on the middle, which, at firſt ſight, eſpecially when viewed ſidewiſe, may be miſtaken for the mouth; for the mouth appears not, unleſs when it is open; its aperture exceeds not ſix or ſeven lines; and it is not above two or three lines diſtant from the fold mentioned above.

Each jaw is armed with two very long inciſive teeth, which are as yellow as ſaffron, and of ſtrength ſufficient to cut wood. I have ſeen this animal, in the courſe of a ſingle night, cut a hole in one of the planks of his lodging large enough to let out his head. His tongue is narrow, thick, and ſomewhat rough. His whiſkers conſiſt of black and white hairs, placed on each ſide of the noſe; and there are ſimilar hairs, but blacker and fewer in number, on each ſide of the head under the ears. The reſiſtance of the animal prevented us from counting the number of its grinders.

Each foot, both before and behind, has five toes, four of which are armed with claws about half an inch long, and of a fleſh colour. But

this colour ſhould not be regarded as a conſtant character; for, in ſeveral animals, and particularly the hare, we often find the claws black, while, in other individuals, they are whitiſh or fleſh-coloured. The fifth, or interior claw, is very ſhort, and viſible only when the animal raiſes his foot. Between the hind feet, at a little diſtance from the organs of generation, there are two paps of a browniſh colour. In fine, though the tail is hardly viſible, by ſearching, we find a ſmall button of two or three lines long.

The domeſtic paca, or ſpotted cavy, eats every thing preſented to him, and has a ſtrong appetite. He is commonly fed with bread, which he eats equally well, whether it be ſoaked in water, in wine, or even in vinegar. But, he is ſo fond of ſugar and fruits, that, when offered to him, he expreſſes his joy by bounding and leaping. He is alſo fond of roots and pot-herbs of all kinds; for he eats, with equal reliſh, grapes, cellery, onions, and garlic; and he refuſes not coleworts, graſs, moſs, or the bark of trees. We have even ſeen him eat wood, though half charred. Fleſh he ſeemed to like worſe than any other food, and he eat it but rarely, and in very ſmall quantities. He might be eaſily fed with grain; for he often ſearched for it among his litter. When he drinks, he laps like the dog. His urine is thick, and has an inſupportable odour. His excrements conſiſt

of ſmall crottels, which are longer than thoſe of the rabbit or hare.

From theſe minute obſervations, we are led to believe that this ſpecies might be naturalized in France, which, as the animal is eaſily tamed, and his fleſh is excellent, would be a uſeful acquiſition. He ſeems not to be much afraid of cold; and, beſides, as he can dig holes in the earth, he could eaſily defend himſelf againſt the rigour of winter. A ſingle individual of this ſpecies would furniſh as much good meat as ſeven or eight rabbits.

M. de la Borde informs us, that the ſpotted cavy generally lives on the banks of rivers; and that he forms his hole in ſuch a manner as to have three different ways of entering, or going out. 'When purſued,' M. de la Borde remarks, 'he takes to the water, and dives frequently; 'but, when attacked by the dogs, he makes a 'vigorous defence.' M. de la Borde adds, 'that the fleſh of this animal is much eſteemed 'at Cayenne, and that, however prepared, it 'is excellent.

'The ſpotted cavy lives alone in his hole, and 'leaves it not till night, when he goes in queſt 'of food. He comes not abroad during the 'day, unleſs when he is obliged by the neceſ-'ſities of nature; for no dung is ever found in 'his kennel; and, when he returns, he always 'ſhuts up the entrances with leaves and twigs. 'The female generally produces but one at a

'time,

Plate CLX.

A. Bell Sculp.t

PACA.

'time, which quits not the mother till it be full 'grown, or, if it be a male, till it copulates. 'At Cayenne, there are two or three ſpecies, 'which are ſaid not to intermix. Some of them 'weigh from fourteen to twenty pounds, and 'others from twenty-five to thirty.'

THE VIRGINIAN OPOSSUM *.

THE opoſſum is an American animal, and eaſily diſtinguiſhable from all others, by two very ſingular characters. 1. Under the belly of the female there is a large cavity in which ſhe receives and ſuckles her young. 2. In both male and

* All the ſpecies of the opoſſum have two canine teeth in each jaw. The cutting teeth in each jaw are unequal. They have five toes on each foot; and the hind feet are formed like a hand, with a diſtinct thumb.—The Virginian opoſſum has a long ſharp pointed noſe, large, round, naked, and very thin ears, ſmall, black, lively eyes, and long ſtiff hairs on each ſide of the noſe, and behind the eyes. The face is covered with ſhort ſoft hairs, of a duſky colour. Above each eye, there is a large white ſpot. The cheeks are whitiſh, and the ſides of the neck of a dirty yellow. The hind part of the neck, and the back, are covered with ſoft, but uneven hairs, above two inches long, the bottoms of which are of a yellowiſh white, the middle part black, and the ends whitiſh. The ſides are covered with dirty and duſky hairs, and the belly with ſoft, woolly, dirty white hair. The legs and thighs are black, the feet duſky, and the claws white. The baſe of the tail, for near three inches, is clothed with long hairs like thoſe on the back, and the remainder with ſmall ſcales; the half next the body is black, and the reſt white. The tail has a diſagreeable appearance, reſembling the body of a ſnake, and has the ſame prehenſile power as that of ſome monkeys. The body is round, and pretty thick, and the legs are ſhort. The female, on the lower part of the belly, has a large pouch, in which the teats are lodged, and where the young ſhelter as ſoon as they are born. The length of one I examined was ſeventeen inches, and that of the tail fourteen; *Pennant's Synopſ. of Quad. p.* 205.

The

and female, the firſt toe of the hind feet has no claws, and is ſeparated from the reſt, like the thumb

The Braſilian name of this animal is *ſarigue, çarigue,* or *carigueya.*

Carigueya jupatiima; *Piſon. Hiſt. Braſil. p.* 323.

Carigueya taiibi; *Marcgr. Hiſt. Nat. Braſil. p.* 222. *Raii Synopſ. Quad. p.* 182. 185.

Tlaquatzin; *Hernand. Hiſt. Mexic. p.* 300. Admiranda fera quam Indi vocant Tlaquatzin, Antonius Herrera Taquatzin dixit. Recentes Hiſpani ſcriptores, corrupto nonnihil nomine, Tlaquacum. Cardanus Chiurcam ſive Chuciam; Stadenius Seruoi; nomenclator ſemi-vulpam. Raphe Hamor, in deſcriptione Virginiæ, opoſſumem dixit: Alii aucham, alii ſaſapim, alii cerigonem dixêre; *Euſ. Nieremberg, Hiſt. Nat. Peregrin. p.* 156. *Note,* The deſcription of this animal given by Nieremberg is copied verbatim from Hernandes.

Cerignon, according to Maffeé; *Hiſt. des Indes, liv.* ii. *p.* 46. and Barleus, *Res geſtæ in Braſilia, p.* 222. The *cerignon,* ſays Maffeé, is a wonderful creature.—From its belly hang two pouches in which it carries its young, each of which adheres firmly to its teats, and never quits the hold till it be able to go in queſt of food. *Note,* Maffeé is wrong, when he mentions the opoſſum as having two pouches. However, when the dugs are ſwelled with milk, they raiſe a protuberance in the middle of the bag, which gives it the appearance of being divided into two. Maffeé probably ſaw the animal in this ſtate, which would lead him into the miſtake.

Sarigoy; *de Lery, p.* 156.

Seruoi or ſerwoi; *Stadenius, Hiſt. Braſil. p.* 129.

Chiurca and *chucia,* according to Oviedo and Cardan; *De Subtilitate, lib.* x. *oper. p.* 531.

Apoſſumes; *Raph. Hamor, Deſcript. de la Virginie.*

Opaſſum; *de Laët, Hiſt. de Nouveau Monde, p.* 88.

Carigueya ſeu Marſupiale Americanum; *Anatomy of an Opoſſum by Edward Tyſon, London,* 1698. *Phil. Tranſ.* No. 239. *Note,* Tyſon deſcribed the female, and Cowper afterwards gave a deſcription of the male; *Phil. Tranſ.* No. 290.

Opoſſum; *Cateſby's Carolina, Append. p.* 29. *Beverly's Virginia,*

thumb in the human hand; while the other toes of the ſame feet are placed near each other, and armed with crooked claws. The firſt character has been remarked by ſome travellers and naturaliſts; but the ſecond has entirely eſcaped them. It was firſt obſerved by Edward Tyſon,

ginia, p. 135. *Lawſon's Carolina, p.* 120. *Rochfort's Antilles, vol.* i. *p.* 283.

Oſſa; *Voyage de la Hontan, tom.* ii. *p.* 44.

Manitou; *Hiſt. Gen. des Antilles, par le P. du Tertre, tom.* ii. *p.* 301.

Faras, or Ravale; *Hiſt. Nat. de Orénoque, par Gumilla, tom.* iii. *p.* 238.—Gumilla falls into the ſame blunder with Maffeé, by telling us, that the female opoſſum has two pouches.

Rat ſavage; *Mem. ſur la Louiſiane, par Dumont, p.* 83.

Rat de bois, wood-rat; *Hiſt. de la Nouvelle France, par le P. Charlevoix, tom.* iii. *p.* 333. *Hiſt. de la Louiſiane, par du Pratz, tom.* ii. *p.* 94.

Simi-vulpa; *Geſner. Quad. p.* 870.—*Icon. Quad. p.* 90. *Aldrov. Quad. p.* 223.

Vulpes major putoria, cauda tereti et glabra; *Barrère, Hiſt. Franc. Equinox.* 166.

Le Manicou; *Feuiliée Obſ. Peru. tom.* iii. *p.* 206.

Mus marſupialis ſylveſtris, Braſilienſis *Beutel ratze*; *Klein. Quad. p.* 59.

Philander, opoſſum, ſeu Carigueya Braſilienſis; *Seba, tom.* i. *p.* 56. *tab.* 36 *mas fig.* 1. *fœmina fig.* 2.—Philander Orientalis; *Seba, tom.* i. *p.* 61. *tab.* 38. *fig.* 1.—Philander maximus Orientalis; *Seba, tom.* i. *p.* 64. *tab.* 39. *Note*, Theſe three appellations, by which Seba means to point out three different animals, denote only the ſame animal, as ſhall be ſhown in the text.

Philander ſaturate ſpadiceus in dorſo, in ventre flavus, maculis ſupra oculos flavis.—Philander, le Philandre; *Briſſon. Quad. p.* 207.

Didelphis marſupialis, mammis octo intra abdomen; *Linn. Syſt. Nat. p.* 71. *Amœn. Acad. tom.* i. *p.* 279.

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an Engliſh phyſician. He is the only author who has given a good deſcription of the female*; and, a few years after, Mr. Cowper, a celebrated Engliſh anatomiſt, communicated to Tyſon the obſervations he had made upon the male. Other authors, and particularly the nomenclators, who perpetually multiply ſpecies without neceſſity, have committed a number of blunders with regard to this animal, which we muſt endeavour to correct.

Our opoſſum is the ſame animal with the great Oriental philander of Seba †; for, of all the animals of which Seba has given figures, and to which he applies the names of *philander*, *opoſſum*, or *carigueya*, this alone has the two characters of a pouch under the belly, and thumbs without claws on the hind feet. Neither is the opoſſum an Eaſtern animal, but a native of the warm climates of the New World; for the two we have in the royal cabinet were brought from America. That of Tyſon was ſent to him from Virginia. M. de Chanvallon, a correſpondent of the Academy of Sciences at Martinico, who gave us a young opoſſum, recogniſed the other two to be real American opoſſums. It is agreed by all voyagers, that this animal is found in Braſil, New Spain, Virginia, the Antilles, &c. and none of them ever mention their having ſeen it

* The Anatomy of an Opoſſum, London, 1698.

† Seba, tom. i. p. 64. tab. 39.

in the Eaſt Indies. Hence Seba deceives himſelf, when he calls them the *Oriental philanders*. He ſays, that his philander was ſent him from Amboina, along with other curioſities, under the name of *coes-coes*; but he allows, at the ſame time, that it had been brought to Amboina from ſome other remote country *. This confeſſion is alone ſufficient to throw a ſuſpicion on the denomination of *Oriental philander*; for it is very probable that travellers may have tranſported this animal from America to the Eaſt Indies; but we have no proof of its being a native of Amboina; and the very paſſage quoted from Seba ſeems to indicate the contrary. The ſource of this error, in fact, as well as that of the name *coes-coes*, is to be aſcribed to Piſo, who ſays †, that, in Amboina, there is an animal, ſimilar to the Braſilian opoſſum, which is called *cous-cous*. Piſo mentions no authority for this aſſertion. It would be very ſingular, if it were true, that this animal is found in Amboina, and in no other part of the Eaſt Indies. Seba, on the contrary, remarks, that the one ſent to him from Amboina

* Philander maximus orientalis fœmina. Inter alia rariora et hocce animal nobis ex Amboina miſſum eſt, ſub nomine *cos-coes*, eo quidem delatum EX ORIS REMOTIORIBUS; *Seba, vol.* i. *p*. 64.

† In Indiis Orientalibus, IDQUE SOLUM, QUANTUM HACTENUS CONSTAT, IN AMBOINA ſimilis beſtia frequens, ad felis magnitudinem accedens; mactata ab incolis comeditur, ſi rite præparetur, nam alias fœtet. Nomen illi *cous-cous* inditum; *Piſon. Hiſt. Nat. Braſil. p*. 323.

was

was not a native of that place, but had been tranſported from a more diſtant country. But, though he was ignorant of the region from which his philander was brought, he has preſumed to give it the epithet of *Oriental*. It is unqueſtionably, however, the ſame animal, as will appear from comparing his figure, tab. 39. with Nature. But what augments this error, at the ſame time that the author gives to the American opoſſum the name of *the great Oriental philander*, he exhibits to us another animal, which he believes to be different from the former, and calls it the *American philander* *; and yet, from his own deſcription, it differs from the great Oriental philander only in being ſmaller, and in having the ſpots above the eyes of a browner colour. Theſe differences are too ſlight and too accidental to conſtitute diſtinct ſpecies; for he takes no notice of another difference, which, if it had any exiſtence, would be much more eſſential, namely, that this American philander of Seba † has a ſharp claw upon the thumbs of the hind feet, while his great Oriental philander has no claws on theſe thumbs ‡. Now, it is certain, that our opoſſum, which is the true American one, has no claws on the hind thumbs. If any animal, therefore, with ſharp claws on theſe thumbs, exiſted, like that repreſented by Seba in his 36th

* Seba, tab. 36. fig. 1 and 2.

† Id. ibid.

‡ Id. tab. 39.

table,

table, it could not, as he maintains, be the American opoſſum. But this is not all: Seba gives a third animal under the name of the *Oriental philander* *; of which, however, he makes no mention in his deſcriptions of the other two, but follows François Valentin, an author, as formerly remarked, who merits no confidence. This third animal is ſtill the ſame with the two firſt. Hence it appears, that the three figures in Seba's 36th, 38th, and 39th tables, are one and the ſame animal; and it is probable, that the drawer, from inattention, has given ſharp claws to the hind as well as to the fore thumbs, as in tables 36th and 38th, and that, being more exact in table 39th, he has repreſented the thumbs of the hind feet, as they really are, without claws. We are, therefore, perſuaded that theſe three animals of Seba are only individuals of the ſame ſpecies, which is the ſame with that of our opoſſum, and that the ſlight differences in ſize and colour, mentioned above, proceed from age or from accident. The author himſelf allows, that the two animals in his 36th and 38th tables, differ only in ſize and ſome ſhades of colour †; and that the third, table 39th, differs from the two former in being larger only, and having the ſpots above

* Seba, tab. 38 fig. 1.

† Eſt autem femella hæcce Americanis Philandris FOEMINIS QUAM SIMILLIMA; niſi quod pilis dorſalibus aliquantum ſaturatius fuſcis veſtita, et toto habitu proccrior ſit illis; *Seba, vol.* i. *p.* 61.

 the

the eyes, inſtead of yellowiſh, of a brown colour. Seba remarks, ‘ That, according to Francis Va-‘ lentin, the philander, table 38th, is the largeſt ‘ kind found in the Eaſt Indies, and eſpecially ‘ among the Mallays, where it is called *pelan-‘ dor Aroé*, that is, *the rabbit of Aroé*, though ‘ Aroé is not the only place where theſe animals ‘ are to be met with; that they are common in ‘ the iſland of Solor; that they are reared along ‘ with the rabbits, to whom they do no harm; ‘ that their fleſh, which is excellent, is eaten by ‘ the inhabitants,’ &c. Theſe facts are extremely queſtionable, not to ſay falſe. 1. The philander, tab. 38th, is not the largeſt Eaſt India kind; for, according to our author, that repreſented in tab. 39th, which he likewiſe attributes to the Eaſt Indies, is larger. 2. This philander has no reſemblance to the rabbit; and, conſequently, is improperly called *the rabbit of Aroé*. 3. No voyager to the Eaſt Indies makes mention of this remarkable animal; neither is it found in any other part of the Old Continent. Seba himſelf ſeems to perceive not only the incapacity, but the unfaithfulneſs of the author he quotes: ‘ Cujus equidem rei,’ ſays he, ‘ fides ſit penes au-‘ torem. At mirum tamen eſt, quod D. Valen-‘ tinus philandri formam haud ita deſcripſerit ‘ prout ſe habet, et uti nos icones ad vivum fac-‘ tas prægreſſis tabulis exhibuimus *.’ But, to give a complete demonſtration of the little credit

* Seba, tom. i. p. 61.

due

due to the teſtimony of Francis Valentin, who has written a hiſtory of the Eaſt Indies in five folio volumes *, it is ſufficient to refer to what is ſaid of him by Artedi †, and to the reproaches thrown upon his veracity by Seba himſelf ‡. Valentin aſſerts, 'that the pouch of the philander 'is a uterus, in which the young are conceived; 'that, after diſſecting a female himſelf, he could 'find no other; that, if this pouch is not a real 'uterus, the teats are to the young what the pe-'dicles are to fruits; that they adhere to theſe 'teats till they are full grown, and then ſeparate 'as the fruit from the pedicle, after it arrives at 'maturity,' &c. The truth is, that Valentin, who aſſures us that theſe animals are extremely common in the Eaſt Indies, and particularly in the iſland of Solor, had never ſeen one of them in that country; that all he has ſaid, including his moſt conſpicuous errors, he has copied from Piſo and Marcgrave, who both copied from Ximenes, and are wrong in every article they have added of their own; for Marcgrave and Piſo, as well as Valentin, aſſert, in the moſt po-

* Ond ne nieuſt Ooſt-Indien, &c. 1724.

† Multa ſcripſit Franciſcus Valentinus, quæ Judæus Appella credat. . . Ita comparatus eſt hic liber Belgicus, ut hiſtoricorum naturalium genuinorum et eruditorum oculos nullo modo ferre poſſit; *Artedi Ichthyologiæ Hiſt. Literar. p.* 55 et 56.

‡ Inde autem quam liquidiſſime detegitur error a D. Franciſco Valentino commiſſus, circa hiſtoriam horum animalium; *tom.* iii. *p.* 273. . . . Error abſonus valde et enormis, inde forſan ortum duxit, quod vir iſte hanc animalium ſpeciem haud debite examinaverit, &c.; *Seba, vol.* i. *p.* 64.

ſitive

ſitive tone, that the pouch is the true uterus *, where the young opoſſums are conceived. Marcgrave ſays, that he diſſected a female, and found no other uterus. Piſo goes farther, and tells us, that he diſſected ſeveral females †, and never could diſcover any internal uterus; and to this aſſertion he adds another equally falſe, that this animal is found in Amboina. Let men now judge what credit is due to Marcgrave, Piſo, and Valentin, the firſt of whom has examined with no attention, the ſecond has augmented the errors of the firſt, and the third has copied from both.

I aſk pardon of my readers for this long critical diſcuſſion. But, when errors are to be corrected, we can never be too exact, or too attentive, even to minute circumſtances.

M. Briſſon, in his account of quadrupeds, has implicitly adopted what he found in the works of Seba, and follows him both in his denominations and deſcriptions. He even proceeds a ſtep farther than his author, when he makes three diſtinct ſpecies of the philanders, repreſented in tab. 36. 38 and 39. of Seba; for if M. Briſſon had examined the idea given by Seba, he would have found, that the latter does not exhibit his

* Hæc burſa ipſe uterus eſt animalis, nam alium non habet, uti ex ſectione illius comperi: In hac ſemen concipitur et catuli formantur; *Marcgrav. Hiſt. Braſilienſ. p.* 223.

† Ex reiteratis horum animalium ſectionibus, alium non invenimus uterum præter hanc burſam, in qua ſemen concipitur et catuli formantur; *Piſon. Hiſt. Nat. Braſil. p.* 323.

philanders

philanders as three diſtinct ſpecies. Seba never doubted, that an animal found in the warm climates of America, would not alſo be found in the warm regions of Aſia. He denominated his animals Oriental or American, according as they came to him from the one or the other Continent. It is obvious, from the following paſſage, that he does not take the word *ſpecies* in a ſtrict ſenſe: 'This is the largeſt *ſpecies* of theſe animals;' p. 61. He adds, 'This female is perfectly ſimilar 'to the female philanders of America; it is only 'longer, and covered on the back with hair of a 'deeper yellow.' Theſe differences, as formerly remarked, are accidental varieties only, which are common among individuals of the ſame ſpecies at different ages; and, in fact, Seba never pretended to make a methodical diſtribution of animals into claſſes, genera, and ſpecies. He gives only figures of the different ſpecimens in his cabinet, which he diſtinguiſhes by numbers, according to any varieties he perceived in their ſize, the tints of their colours, or the countries from which he obtained them. It is apparent, therefore, that M. Briſſon had no authority for making three ſpecies of philanders, eſpecially as he gives no diſtinctive characters, and makes no mention of the want of claws on the thumbs of the hind feet. He ſays, in general, that the philanders have *claws*, without making any exception. The philander, however, which he ſaw in the royal cabinet, had no claws on the

thumbs

thumbs of the hind feet; and it appears to have been the only one he ever ſaw; ſince, in his book, there is no more than No. 1. marked with two aſteriſms. The chief error in Briſſon's work is in the liſt of ſpecies, which is more numerous than that of Nature.

M. Linnæus is the only other nomenclator we have to examine. In this article, he is leſs exceptionable than in many others; for he has ſuppreſſed one of the three ſpecies of Seba *. But he ought to have reduced them to one.

From the preceding examination, which has been made with the moſt ſcrupulous impartiality, it appears, that the *philander*, *opoſſum*, ſeu *carigueya Braſilienſis*, of Seba, tab. 36. fig. 1, 2, and 3. the *philander Orientalis maximus*, tab. 39. fig. 1. the Oriental philander, No. 2. and the philander of Amboina, No. 3. of M. Briſſon; and, laſtly, the *marſupialis*, No. 1. and the *opoſſum*, No. 3. of Linnæus, are the ſame animal, and that this animal is our opoſſum, which is peculiar to South America, and was never ſeen in the Eaſt Indies, except when tranſported thither. I thought I had cleared up every ambiguity; but ſtill ſome difficulties remain with

* The Count de Buffon's ſtrictures on the Syſtema Naturæ of Linnæus are adapted to the tenth edition; Buffon's criticiſms, of courſe, have no application to the preſent ſtate of Linnæus's ſyſtem. The tranſlator, therefore, thinks it unneceſſary to inſert them; and, he apprehends, the reader will not think himſelf injured by the omiſſion.

regard

regard to the *taiibi*, which Marcgrave * has not represented as an animal different from the *carigueya*; but, nevertheless, Johnston †, Seba ‡, Klein ||, Linnæus §, and Brisson ¶, give it as a species distinct from the preceding. In Marcgrave, however, we find the two names *carigueya* and *taiibi* at the head of the same article, where it is said, that this animal is called *carigueya* in Brasil, and *taiibi* in Paraguay. 'Carigueya Brasiliensibus, aliquibus jupatiima, Petiguaribus taiibi.' He then gives Ximenes's description of the carigueya. After which, we find another animal called *taiibi* by the Brasilians, *cachorro domato* by the Portuguese, and *booschratte*, or *wood-rat*, by the Dutch. Marcgrave says not that this animal is different from the carigueya; he represents it, on the contrary, as the male carigueya: 'Pedes et digitos habet ut fœmella jam descripta.' It is obvious, therefore, that, in Paraguay, both the male and female opossum are called *taiibi*, and that, in Brasil, the name *taiibi* is given to the male, and that of *carigueya* to the female. Besides, the differences between these two animals, as they appear even from the descriptions given of them, are too slight to constitute distinct species. The most remarkable

* Marcgrave, Histor. Natur. Brasiliens. p. 223.

† Johnston, de Quadruped. p. 95.

‡ Seba, vol. i. p. 57. tab. 36. fig. 4.

|| Klein, de Quadruped. p. 59.

§ Linnæus Syst. Nat. edit. 10. p. 54. No. 2.

¶ Brisson, Regn. Anim. p. 290.

difference

difference is in the colour of the hair, which, in the carigueya, is yellow and brown, but gray in the taiibi, whofe hairs are white below *, and brown or black at the extremities. It is more than probable, therefore, that the taiibi is the male opoffum. Mr. Ray † feems to be of this opinion, when fpeaking of the carigueya and taiibi, he fays, 'An fpecie, an fexu tantum a 'præcedente diverfum?' Seba, however, notwithftanding the authority of Marcgrave, and the rational doubts of Ray, gives, in tab. 36. fig. 4. the figure of an animal, which, without any hefitation, he calls *taiibi*, and, at the fame time, fays, that it is the fame with the *tlaquatzin* of Hernandez. This is to accumulate error upon error; for, from the acknowledgment of Seba himfelf, his taiibi, which is a female, has no pouch under the belly ‡, and Hernandez makes this pouch the chief character of his tlaquatzin. The taiibi of Seba, therefore, cannot be the tlaquatzin of Hernandez, becaufe it wants the pouch, nor the taiibi of Marcgrave, becaufe it is a female. It is certainly another animal, ill drawn, and worfe defcribed, to which Seba has thought proper to give the name of *taiibi*, and abfurdly

* The hair of the wood-rat is of a fine filver gray colour. Some of them are feen totally white. The female has, under her belly, a purfe which fhe can open and fhut at pleafure; *Charlevoix's Defcript. de la Nouv. France, tom.* iii. *p.* 334.

† Raii Synopf. Quad. p. 185.

‡ Marfupio tamen pro recondendis catulis caret hæc fpecies; *Seba, tom.* i. *p.* 58.

abſurdly refers it to the tlaquatzin of Hernandez, which, as formerly remarked, is the ſame with our opoſſum. Briſſon, and Linnæus, with regard to the taiibi, have blindly followed Seba. They have both copied Hernandez's blunder as to the tlaquatzin, and made an equivocal ſpecies of this animal, the one under the name of the *Braſilian philander* *, and the other under that of *philander* †. The true taiibi of Marcgrave and Ray, therefore, is neither the taiibi of Seba, nor the philander of Linnæus, nor the Braſilian philander of Briſſon; and the two latter are not the tlaquatzin of Hernandez. The taiibi of Seba, if it had any exiſtence, would be an animal different from all thoſe mentioned by the above authors, and would require a new denomination. In fine, as the male opoſſum has no pouch, it is not ſurpriſing that the male and female have been conſidered as different animals, and that the female has got the name of the *carigueya*, and the male that of the *taiibi*.

Edward Tyſon diſſected and deſcribed the female opoſſum with great accuracy. In his individual, the head was ſix inches long, the body thirteen, and the tail twelve. The fore legs were ſix inches in length, and the hind legs four inches and a half. The circumference of the body was

* Philander pilis in exortu albis, in extremitate nigricantibus veſtita. . . . Philander Braſilienſis; *Regn. Anim. p.* 290.

† Didelphis philander, cauda baſi piloſa, auriculis pendulis, mammis quaterniis; *Syſt. Nat. p.* 72.

from fifteen to ſixteen inches; and that of the tail, at its origin, three inches, and only one toward the extremity. The head acroſs the eyes was three inches broad, gradually diminiſhed to the noſe, and reſembled the head of a pig more than that of a fox. The orbits of the eyes were much inclined in the direction from the ears to the noſe. The ears were rounded, and about an inch and a half long. The aperture of the mouth was two inches and a half, meaſuring from one of the angles of the lips to the end of the muzzle. The tongue was pretty narrow, three inches long, rough, and full of ſmall papillæ, directed backward. There were five toes on the fore feet, all armed with crooked claws, and an equal number on the hind feet, four of which only had claws, and the fifth, which is the thumb, was ſeparated from the reſt, placed in a lower ſituation, and had no claw. There was no hair on the claws, which were covered with a reddiſh ſkin, and nearly an inch in length. The palm of the hands and feet was large, and there were fleſhy calloſities under all the toes. The tail was covered, for two or three inches from its origin, with hair, and afterwards, to the end, with a ſmooth ſcaly ſkin. The ſcales were whitiſh, nearly hexagonal, and regularly placed, ſo as not to encroach on each other, being all ſeparated by a ſmall circle of ſkin, which was of a browner colour than the ſcales. The ears were naked, thin, and membranous, like the wings of a bat;

a bat; they were alſo very open, and the auditory canal was large. The upper jaw was a little longer than the under. The noſtrils were large, the eyes ſmall, black, prominent, and lively. The neck was ſhort, the cheſt broad, and the whiſkers like thoſe of the cat. The hair on the fore part of the head was whiter and ſhorter than that on the body: The back and ſides were aſh-coloured, mixed with ſome ſmall tufts of black and whitiſh hairs; the belly was browner, and the legs more duſky. Under the belly of the female, there was an aperture about two or three inches long, formed by two folds of ſkin, which compoſed a pouch thinly covered with hair internally. This pouch contained the teats. The young, as ſoon as brought forth, go into this pouch in order to ſuck the mother, and acquire ſo ſtrong a habit of concealing themſelves, that, after arriving at a conſiderable ſize, they continue to take refuge in the pouch, whenever they are alarmed. This pouch the animal can open or ſhut at pleaſure, which it performs by means of ſeveral muſcles, and two bones, that are peculiar to the opoſſum. Theſe two bones are placed before the os pubis, to which they are attached by their baſe. They are about two inches long, and gradually diminiſh in thickneſs from the baſe to the extremity, and ſerve as a fulcrum to the muſcles which open the pouch. The antagoniſts of theſe muſcles ſhut the pouch ſo cloſe, that, in the living animal,

animal, it cannot be ſeen, unleſs when forcibly dilated by the fingers. In the inſide of the pouch there is a number of glands, which ſecrete a yellowiſh ſubſtance of ſo diſagreeable a ſmell, that it infects the whole body of the animal. This matter, however, when dried, not only loſes its diſagreeable odour, but acquires a perfume which may be compared to that of muſk. The pouch is not, as has been falſely aſſerted by Marcgrave and Piſo, the place where the young are conceived. The female opoſſum has an internal uterus, which differs, indeed, from that of other animals, but where the young are conceived and retained till the moment of their birth. Tyſon * tells us, that, in this animal, there are two uteri, two vaginæ, four cornua uteri, four Fallopian tubes, and four ovaria. From the diſſections of M. Daubenton, though he agrees not with Tyſon in every article, it is certain, that, in the generative parts of the opoſſum, there are ſeveral parts double, which are ſingle in other animals. The glans penis of the male, and the glans clitoridis of the female, are forked, and have the appearance of being double. The vagina, which is ſingle at its entrance, afterwards divides into two canals, &c. This ſtructure is extremely ſingular, and differs from that of all other quadrupeds.

* We ſhall, therefore, here take a ſurvey and an account of theſe parts; and we find that there are *two* ovaria, *two* tubæ Fallopianæ, *two* cornua uteri, *two* uteri, and *two* vaginæ uteri; *Tyſon, Anatomy of an Opoſſum, p.* 36.

The

The opoſſum is an original native of the warm countries of the New World. He appears not, however, to be ſo ſtrictly attached to warm climates as the armadillo; for he is found not only in Braſil, Guiana, and Mexico, but likewiſe in Florida, Virginia *, and other temperate regions of America. He is a very common animal; becauſe the female produces often, and, according to moſt authors, four or five †, ſome ſay ſix or ſeven, at a time. Marcgrave aſſures us, that he has ſeen ſix living young in the pouch of the female ‡. Theſe young ones were about two inches long, very agile, and came out and went into the pouch ſeveral times a day. When new born, they are very ſmall. According to ſome travellers, when they eſcape from the uterus, go into the pouch, and attach themſelves to the teats, they exceed not the ſize of flies §. This fact is not ſo much exaggerated

* The opoſſum is common in Virginia and New Spain; *Hiſt. Nat. des Antilles, p.* 122.

† Quaternos quinoſve parit catulos, quos utero conceptos, editoſque in lucem, alvi cavitate quadam, dum adhuc parvuli ſunt, condit et ſervat, &c.; *Hernand. Hiſt. Mex. p.* 330.

‡ Hæc ipſa quam deſcribo beſtia ſex catulos vivos et omnibus membris abſolutos, ſed ſine pilis, in hac burſa habebat, qui etiam hinc inde in ea movebantur; quilibet catulus duos digitos erat longus, &c.; *Marcgrave, Hiſt. Braſ. p.* 222. They have a pouch under the belly, where they carry their young, ſix or ſeven of which are brought forth at a litter; *Deſcript. de Nouv. Monde, par de Laët, p.* 485.

§ The female opoſſum has a double belly, or rather a pendulous membrane that covers the whole belly, without being fixed to

gerated as might naturally be imagined; for we have ſeen, in an animal whoſe ſpecies has a great affinity to that of the opoſſum, young attached to the teats, which were not bigger than large beans; and it is probable, that, in this animal, the uterus is only a place deſtined for the conception and firſt formation of the fœtus, the excluſion of which being earlier than in other quadrupeds, its growth is finiſhed in the pouch, where it enters the moment after its premature birth. No perſon has aſcertained the time of geſtation in the female opoſſum, which is probably much ſhorter than in any other quadruped: And as this premature excluſion of the fœtus is a ſingularity of Nature, we muſt earneſtly recommend it to thoſe who have an opportunity of obſerving the opoſſum in its native country, to endeavour to diſcover the time the females go with young, and, after birth, how long the young ones remain attached to the nipples. This laſt obſervation is both curious in itſelf, and may be productive of utility: From it we may perhaps learn ſome method of pre-

to it, the inſide of which may be ſeen after the animal has once brought forth. At the hinder part of this membrane, there is an aperture, into which the hand may be introduced. It is here where the young retire, either to avoid danger, or for the purpoſes of ſucking and ſleeping. In this manner they live till they are able to procure food for themſelves. . . . . I have ſeen young ones attached to the teats, when they exceeded not the ſize of a fly. They never quit the teats till they are as large as mice; *Hiſt. de la Virginie, p.* 220.

ſerving the lives of infants who come into the world before the natural period.

That the young opoſſums, therefore, continue attached, and paſted, as it were, to the teats of the mother, till they acquire ſtrength and growth ſufficient to enable them to move about with eaſe, is a fact no longer to be doubted. Neither is it peculiar to this ſpecies, as will appear from the hiſtory of the *marmoſe*, or murine opoſſum, which is given in the next article. The female of this laſt ſpecies has no pouch under its belly, like the female of the former. It is not, therefore, to the conveniency of a ſecure retreat, afforded by the pouch, that the effects of adhering long to the teats, and acquiring growth in this immoveable ſituation, are to be aſcribed. I make this remark to prevent the pouch from being regarded as a ſecond uterus, or at leaſt as a ſhelter indiſpenſably neceſſary to young which are prematurely brought forth. Some authors mention, that the young remain fixed to the teats for ſeveral weeks *. Others ſay, that they continue in the pouch during the firſt month of their age only †. It is an eaſy operation to

* The young are attached to the teats, and remain ſeveral weeks in this ſituation, till they acquire ſtrength, the uſe of their ſight, and a proper covering of hair. They then fall into the membrane, from which they go out and return at pleaſure; *Hiſt. de la Virginie, p.* 220.

† Septem plus minuſve ut plurimum uno partu excludit fœtus, quos donec menſtruam ætatem attingant, pro lubitu nunc alvo recondit, nunc iterum prodit; *Ralph. Hamor. apud Nieremberg, p.* 157.

open

open the pouch of the mother, and to examine and count the young without incommoding them. They never quit the teats, which they hold with their mouths till they have ſtrength enough to walk. They then fall into the pouch; and afterwards go out * in queſt of food †. They often return to the pouch to ſleep, to ſuck, and to conceal themſelves when danger is apprehended; then the mother flies, carrying her whole offspring along with her. Her belly ſeems not to be enlarged till long after ſhe has brought forth, and till the young have acquired ſome bulk; for, during the time of geſtation, her ſize is not perceptibly augmented.

* After bringing forth, the mother puts her offspring into the pouch. They inſtantly fix upon the teats, and continue to feed upon the milk in this ſecure and warm retreat. . . . As ſoon as they are able to move about upon the graſs, the mother opens her pouch, and allows them to eſcape, &c.; *Mem. de la Louiſiane, par Dumont, p.* 84.

† The mother brings forth her young blind and naked, and with her fore paws puts them into the pouch, which is a kind of uterus, where they find an agreeable warmth, &c. . . . She takes them not out of this pouch till they have the uſe of their eyes. She then carries them to ſome riſing ground where no danger is to be apprehended; and, having opened her pouch, ſhe makes them come out, expoſes them to the rays of the ſun, and amuſes them by ſporting and playing. Upon the ſmalleſt noiſe, or ſuſpicion of danger, ſhe ſoon recalls them by a cry *tic, tic, tic*, and they run into the pouch for ſhelter, &c.; *Seba, vol.* i. *p.* 56.—When the mother hears any ſuſpicious noiſe, ſhe gives a ſignal by a certain cry, which the young underſtand, run inſtantly to their protector, and return into the pouch; *Mem. de la Louiſiane, p.* 83.

From

From inſpecting the form of the feet, it is eaſy to perceive, that theſe animals muſt walk ill and run ſlowly. A man, accordingly, it is ſaid, may eaſily ſeize them without accelerating his pace*. As a compenſation, however, they climb trees with great facility †, and conceal themſelves among the leaves, in order to ſeize birds ‡; or rather they ſuſpend themſelves on a branch by the tail, which is ſo muſcular and flexible ||, that it is capable of wrapping round

* This animal is ſo ſlow, that he is very eaſily taken; *Mem. de la Louiſiane, par Dumont, p.* 83.—I never ſaw any animal move ſo ſlowly; for I have often taken one at my ordinary pace; *Du Pratz, Hiſt. de Louiſiane, tom.* ii. *p.* 93.

† Scandit arbores incredibili pernicitate; *Hiſt. Mex. p.* 330.—He mounts trees with ſurpriſing alacrity; and, like the fox, makes great havock among domeſtic fowls. He does no other miſchief; *De Laët, p.* 143.—Hoc animal fractibus arborum veſcitur. Ideoque non ſolum ob id arbores ſcandit, ſed etiam cum catulis in crumena incluſis, magna agilitate de arbore in arborem tranſilit; *Petrus Martyr, Ocean. decad.* 1. *lib.* ix. *p.* 21.

‡ Fœtet animal inſtar vulpis aut martis: Mordax eſt; veſcitur libenter gallinis, quas rapit ut vulpes, et arbores ſcandendo avibus inſidiatur: Veſcitur quoque ſacchari cannis, quibus ſuſtentavi per quatuor ſeptimanas in cubiculo meo; tandem funi cui alligatum erat ſe implicans, ex compreſſione obiit; *Marcgrav. Hiſt. Braſ. p.* 223.

|| Cauda . . . . qua mordicus firmiterque quidquid apprehendit retinet; *Hernand. Hiſt. Mex. p.* 330.—His tail is adapted for laying hold of objects: It will, even when ſeized, wrap round a man's finger. . . . . The female, when taken, allows herſelf, without ſhowing the ſmalleſt ſign of life, to be ſuſpended by the tail above a fire. The tail adheres of itſelf; and both the mother and her young thus periſh; for no torture is ſufficient to make her open her pouch; *Hiſt. de la Louiſiane, par M. le Page du Pratz, tom.* ii. *p.* 94.

any

any thing it ſeizes more than once. In this ſituation, with his body ſuſpended, and his head hanging downwards, he will remain very long, waiting for the approach of ſmall birds *. At other times, he leaps from one tree to another, nearly in the ſame manner as the monkeys with prehenſile tails, whom he alſo reſembles in the ſtructure of his feet. Though carnivorous, and even greedy of blood, he eats reptiles, inſects, ſugar canes, potatoes, roots, and the leaves and bark of trees †. He might eaſily be reared as a domeſtic animal ‡; for he is neither miſ-

* He is very fond of birds and poultry; and, accordingly, he enters boldly into the court-yards and hen-houſes. He even goes into the fields to eat the mahi which is ſown there. The inſtinct with which he hunts his prey is extremely ſingular. After killing a ſmall bird, he does not eat it immediately, but lays it down, in an expoſed ſituation, near a tree. He then mounts the tree, ſuſpends himſelf by the tail on a branch which is neareſt to the bird, and waits patiently till ſome carnivorous bird comes to carry it off, upon which he inſtantly darts, and makes a prey of both; *Mem. de la Louiſiane, par Dumont, p.* 84.—He hunts during the night; and wages war againſt the poultry, whoſe blood he ſucks, but does not eat the fleſh; *Hiſt. de la Louiſiane, par M. le Page du Pratz, p.* 93.

† Veſcitur cohortalibus quas vulpecularum muſtelarumve ſylveſtrum more jugulat, illarum ſanguinem abſorbens, cætera innoxium ac ſimpliciſſimum animal. . . . Paſcitur etiam fructibus, pane, oleribus, frumentaceis, aliiſque, veluti nos experimento cognovimus, alentes iſtud domi, ac in deliciis habentes; *Hernand. Hiſt. Mex. p.* 330.—He climbs trees with great alacrity, and feeds upon birds. Like the fox, he preys upon poultry; but, when prey of this kind fails him, he eats fruits; *Hiſt. des Antilles, p.* 121.

‡ Victitat carnibus et fructibus, herbis et pane; idioque a multis animi gratia domi nutritur; *Marcgrav. Hiſt. Braſil. p.* 222.

chievous

chievous nor ferocious, and is eaſily tamed. But he diſguſts by his ſmell, which is ranker than that of a fox *. His figure is alſo diſagreeable; for his ears reſemble thoſe of the ounce, his tail is like a ſerpent, his mouth ſtretches near to his eyes, and his body has always a dirty appearance; becauſe his hair, which is neither ſmooth nor curled, ſeems as if it were covered with dung †. The offenſive odour proceeds from his ſkin; for his fleſh is not bad ‡. He is one

* The opoſſum reſembles the Spaniſh fox; but he is ſmaller, and has a more unſupportable ſmell; *Deſcript. des Indes Occidentales, par de Laët, p.* 85.

† They have a hideous aſpect, and ſeem always to be covered with dung; *Mem. de la Louiſiane, par Dumont, p.* 8 .—Their hair is gray, and, though fine, it is never ſmooth. The female natives ſpin it, and make garters of it, which they afterwards dye red; *Hiſt. de la Louiſiane, par M. le Page du Pratz, tom.* II. *p.* 94.

‡ Teſtatur ipſe Raphe comediſſe hoc animal, et eſſe grati et ſalubris nutrimenti; *Nieremberg, Hiſt. Nat. Peregrin. p.* 157.—Carnibus hujus animalis non ſolum Indi libentiſſime veſcuntur, verum etiam hanc cæterorum animalium quaſcunque carnes guſtu, ſuavitate nobilitatas, antecellere prædicant. Quapropter legitur in hiſtoria Indica, quod habitatores inſulæ Cubæ, obſervantes magnam horum animalium quantitatem vagantium ſuper arbores ſecus littora inſulæ creſcentes, clanculum accedentes, et de improviſo, magno impetu arborem excutientes, has belluas cadere in aquam cogunt; tunc innatantes illas apprehendunt, poſteo in cibos multifarie coquunt; *Aldrov. de Quadrup. Digit. lib.* ii. *p.* 225.—The fleſh of the wild rat is very good, having nearly the ſame taſte as that of a pig; *Mem. de la Louiſiane, par Dumont, p.* 83.—The fleſh of this animal is excellent, and in taſte reſembles that of a pig; *Hiſt. de la Louiſiane, par M. le Page du Pratz, p.* 94.—The opoſſum is a ſtinking animal; but his fleſh is very good; *Voyage de Coreal, tom.* i. *p.* 176.

of

Plate CLXI.

A. Bell Sculp.

VIRGINIAN OPOSSUM.

Plate CLXII.

A. Bell Sculpt.

FEMALE VIRGINIAN OPOSSUM.

of thoſe animals to which the ſavages give a preference in their hunting, and whoſe fleſh they eat with pleaſure.

SUPPLEMENT.

M. De la Borde, King's phyſician at Cayenne, informs me, that he fed three opoſſums in a ſmall caſk, where they ſuffered themſelves to be managed with eaſe. They eat fiſh, fleſh raw or roaſted, bread, biſket, &c. They licked each other perpetually, and made the ſame purring noiſe as cats do when careſſed.

'I did not perceive,' ſays he, 'that they had 'any bad ſmell. Some ſpecies are large and 'others ſmall *. They all carry their young 'in a pouch under their bellies; and the young 'never quit the teats, even when ſleeping. The 'dogs kill, but do not eat theſe animals. They 'make a kind of grunting noiſe, which extends 'to no great diſtance. They are eaſily tamed. 'They go into the hen-houſes and devour the 'fouls. Their fleſh is not good to eat: In cer-

* There was lately ſent to the Royal Cabinet, from Cayenne, a ſkin of one of theſe ſmall opoſſums, which, though the animal was an adult, exceeded not three inches and a half in length, and the tail was four inches and a half long.

'tain

'tain ſpecies, its odour is ſo inſupportable, that
'the animal receives the epithet of *ſtinking* from
'the inhabitants of Cayenne.'

Theſe ſtinking opoſſums muſt not be confounded with the true *mouffettes*, or ſtinking weaſels, which conſtitute a very different genus of animals.

M. de Voſmaër, director of the Prince of Orange's cabinet of Natural Hiſtory, has added a note to p. 6. of his deſcription of a flying ſquirrel, publiſhed at Amſterdam in the year 1767, in which he ſays,

'The *coeſcoes* is the *boſch* or *beuſrult* of the
'Eaſt Indies, the *philander* of Seba, and the
'*didelphis* of Linnæus. The learned M. de
'Buffon (ſee above, p. 407.) denies abſolutely its
'exiſtence in the Eaſt Indies, and limits it entirely
'to the New World. We can, however, aſſure
'this learned naturaliſt, that Valentin and Seba
'were right in making theſe animals common
'to Aſia and America. Laſt ſummer, I myſelf
'received a male and female from the Eaſt
'Indies. The ſame ſpecies has likewiſe been
'tranſmitted from Amboina to Doctor Schloſſer
'of Amſterdam. The chief difference between
'the *coeſcoes* of the Eaſt and that of the Weſt
'Indies, conſiſts, according to my obſervation,
'in the colour of the hair, which, in the Eaſt
'India male, is all of a yellowiſh white: That
'of the female is a little browner, with a black,
'or rather brown line on the back. The head
'of

'of the West India kind is ſhorter; but the head
'of the male appears to be longer than that of
'the female. The ears of the Eaſt are much
'ſhorter than thoſe of the Weſt India ſpecies.
'The deſcription of the ſecond ſpecies, men-
'tioned by Valentin, is too diffuſe to afford any
'certain information.'

That M. Voſmaër received male and female animals from the Eaſt Indies, under the denomination of *coeſcoes*, I have no reaſon to doubt. But the differences which he himſelf points out between the coeſcoes and the opoſſums, may lead us to conclude that they are not animals of the ſame ſpecies. I acknowledge, however, that M. de Voſmaër's criticiſm is juſt, when he remarks, that I made Seba's three philanders the ſame animal, whilſt, in fact, the third, repreſented in his 39th plate, is a different ſpecies, and is found in the Philippine Iſlands, and, perhaps, in ſome other parts of the Eaſt Indies, where it is known by the name of *coeſcoes*, *cuſcus*, or *cuſos*. In the voyage of Chriſtopher Barchewitz, I find the following notice:

'In the iſland of Lethy, there are *cuſcus* or
'*cuſcos*, whoſe fleſh has nearly the taſte of that of
'a rabbit. In colour they reſemble the marmot.
'The eyes are ſmall, round, and brilliant. The
'legs are ſhort; and the tail, which is long,
'has no hair on it. This animal leaps from one
'tree to another, like the ſquirrel, and then fixes
'its tail round a branch, that it may eat the fruit
'more commodiouſly. It diffuſes a diſagree-

'able

'able odour, like that of the fox. The female 'has a pouch under the belly, into which her 'young go out and in below her tail. She leaps 'from one tree to another, conveying her 'young in this pouch *.'

From the pouch under the belly, and the prehenſile tail, it appears, that the cuſcus or cuſos of the Eaſt Indies is really an animal of the ſame genus with the American opoſſum. But this is by no means a proof that it belongs to the ſame ſpecies with any of thoſe which inhabit America. This would be the only example of ſuch a coincidence. If M. Voſmaër had engraven the figures of theſe coeſcoes, as he mentions in the text, we would have been enabled to form a more complete notion of the ſimilarities and differences which ſubſiſt between the Aſiatic coeſcoes and the American opoſſums. But I am ſtill perſuaded that thoſe of the one Continent will never be found in the other, unleſs they are tranſported thither. I refer the reader to what I have ſaid on this ſubject in p. 407. of this volume.

We mean not to deny the poſſibility of equal climates, in both Continents, producing ſome animals of the preciſe ſame ſpecies. We formerly remarked, that the ſame temperature, in different parts of the globe, ſhould produce the ſame beings, both in the animal and vegetable kingdoms, if all other circumſtances were equal. We treat not here, however, of philoſophical poſſibilities, which may be more or

* Voyage de Barchewitz, p. 532.

leſs

leſs probable, but of a very general fact, of which numberleſs examples may be given. It is certain, that, when America was diſcovered, none of the following animals exiſted in the New World: The elephant, the rhinoceros, the hippopotamus, the camelopard, the camel, the dromedary, the buffalo, the horſe, the aſs, the lion, the tiger, the apes, the baboons, and a number of others, which I have formerly enumerated, p. 111 of this volume. In the ſame manner, the tapir, the lama, the pecari, the jaguar, the couguar, the agouti, the paca, the coati, the ſloth, and ſeveral others formerly mentioned, did not exiſt in the Old Continent. Is not this multitude of examples ſufficient to guard us againſt pronouncing, like M. Voſmaër, that ſuch and ſuch animals belong equally to the ſouthern regions of both worlds?

The following paſſage ſhould be referred to the Indian cuſcus or cuſos:

'In the Malucca iſlands,' Mandelſlo remarks, 'there is an animal called *cuſos*, which dwells 'on trees, and feeds on their fruits. It reſembles a rabbit, and has thick, frizzled, coarſe 'hair, of a mixed colour between gray and 'red. The eyes are round and vivacious, the 'feet ſmall, and the tail ſo ſtrong, that the animal hangs by it on the branches, in order the 'more eaſily to reach the fruit *.'

* Voyage de Mandelſlo, ſuite d'Olearius, tom. ii. p. 384.

In this paſſage no mention is made of the pouch under the belly, which is the moſt diſtinguiſhing character of the opoſſums. But I ſtill maintain, that, if the cuſos of the Eaſt Indies has this character, it is certainly a ſpecies which approaches very near to the American opoſſums; and I ſhall be inclined to think that it differs from the opoſſum nearly in the ſame manner as the jaguar differs from the leopard. Of all the animals belonging to the ſouthern climates of both Continents, the two laſt, without being of the ſame ſpecies, make the neareſt approach to each other.

THE MURINE OPOSSUM*.

THIS ſpecies ſeems to make a very near approach to the former. They both belong to the ſame climate, and to the ſame Continent.

* This opoſſum has long broad ears, rounded at the end, and thin and naked. The eyes are encompaſſed with black. The face, head, and upper part of the body, are of a tawny colour, and the belly of a yellowiſh white. The feet are covered with ſhort whitiſh hair. The toes are formed like thoſe of the preceding ſpecies. The tail is ſlender, and covered with minute ſcales to the very rump. The length, from noſe to tail, is about ſix inches and a half, and that of the tail the ſame. The female wants the pouch or falſe belly; but, on the lower part, the ſkin forms on each ſide a fold, between which the teats are lodged. This ſpecies varies in colour. I have ſeen one from Guiana, which was brown above, and whitiſh beneath; *Pennant's Synopſ. of Quad. p.* 207.

The *marmoſe, marmoſa*, is the Braſilian name of this animal. The negroes call the Virginian opoſſum *manicou*, and the marmoſe, which is ſmaller, the *rat manicou*.

Mus ſylveſtris Americanus *ſcalopes* dictus; *Seba, tom.* i. *p.* 46. *tab.* 31. *fig.* 1 & 2. *Note*, The name *ſcalopes*, given by Seba to this animal, and which Klein and Briſſon have adopted, is very ill applied. The ſcalopes of the Greeks is certainly not the marmoſe of Braſil. Beſides, it is impoſſible to determine, from the writings of the ancients, what animal they meant by the name *ſcalopes*: Ad finem, quidam mures ſunt quos *ſcalopes* vocant, ut Scholiaſtes Ariſtophanis in Acharnonſibus animadvertit; *Aldrov. de Quad. Digit. Vivip. p.* 416. This, I believe, is the only notice we have concerning the ſcalopes, and it is not ſufficient to point out a particular ſpecies, and far leſs can it juſtify the application of the name to an animal of the New World.

Philander ſaturatæ ſpadiceus in dorſo, in ventre dilute flavus, pedibus albicantibus; *Briſſon. Quad. p.* 211.

 Didelphis

tinent. They likewiſe reſemble each other in the form of the body, in the ſtructure of the feet, in the *prehenſile* tail, which is covered with ſcales through its whole extent, except at the origin, where it is covered with hair, and in the arrangement of the teeth, which are more numerous than in other quadrupeds *. But the murine opoſſum is much ſmaller, and its muzzle is ſharper: The female has no pouch under the belly; there are only two longitudinal folds near the thighs, between which the young attach themſelves to the teats. The parts of generation both of the male and female reſemble, in their form and poſition, thoſe of the Virginian opoſſum. The glans of the male is alſo forked and placed in the anus; and this laſt aperture ſeems likewiſe, in the female, to be the orifice of the vagina. The birth of the young, in this ſpecies, ſeems to be ſtill more premature. When they are brought forth, and attach themſelves to the teats, they are hardly ſo large as ſmall beans. The litter is alſo more numerous:

Didelphis murina, cauda ſemipiloſa, mammis ſenis; *Linn. Syſt. Nat. p.* 72. *Note* 1. That Linnæus, who places the murina immediately after the opoſſum, aſks the queſtion, *An pullus præcedentis?* This cannot be the caſe; for Linnæus acknowledges that his opoſſum had a pouch under the belly; and yet, from Seba's deſcription, it is obvious that the female murina has no ſuch pouch: 2. That the character of ſix teats, which he aſcribes to the marmoſe, is by no means conſtant; for I have ſeen one that had *fourteen* teats.

* Both the Virginian opoſſum and the marmoſe have fifty teeth.

I have

Plate CLXIII.

MURINE OPOSSUM.

Plate CLXIV.

A. Bell Sculp.t

FEMALE MURINE OPOSSUM.

I have ſeen ten young, each of them fixed to a ſeparate teat, and yet the mother had four teats unoccupied; ſo that, in all, ſhe had no leſs than fourteen teats. It is upon females of this ſpecies that the obſervations recommended in the preceding article ought chiefly to be made; for I am perſuaded, that they bring forth a few days after conception, and that the young, at the time of excluſion, are only fœtuſes, as they exceed not one fourth part of the growth which fœtuſes generally acquire at that period. The delivery of the mother is always a very early abortion, and the fœtuſes preſerve their lives ſolely by fixing to the teats, and never quitting their hold, till they attain that degree of ſtrength and growth which they would have naturally acquired in the uterus, if they had not been thus prematurely excluded.

The murine opoſſum has the ſame diſpoſitions and manners as the Virginian ſpecies. They both dig holes, burrow in the ground, fix themſelves to the branches of trees by the extremities of the tail, and dart upon birds and ſmall animals. They likewiſe eat fruits, grain, and roots. But they prefer fiſh and crabs, which, it is ſaid, they catch with their tails. This fact is extremely doubtful, and accords not with the natural ſtupidity aſcribed to theſe animals, which, according to the teſtimony of moſt travellers, can neither move, nor fly, nor defend themſelves with any meaſure of dexterity.

THE MEXICAN OPOSSUM *.

THIS animal was firſt taken notice of by Fernandes †. The cayopollin, ſays he, is a ſmall animal, about the ſize of a rat. It reſembles the opoſſum in the muzzle, the ears, and the tail, which laſt it uſes as a hand. The ears are thin and tranſparent. The legs and feet are white. The young, when frighted, lay faſt hold of the mother, who carries them up to the neareſt tree. This ſpecies is found in the mountains of New Spain. Nieremberg ‡ has copied

* This animal has large, angular, tranſparent ears. Its noſe is thicker than that of the former kind. There is a ſlight border of black round the eyes. The hairs on the head and upper part of the body are aſh-coloured at the roots, and tawny at the tips. The belly and legs are whitiſh. The tail is long, pretty thick, varied with brown and yellow, hairy near an inch from its origin, and the reſt is naked. The length, from noſe to tail, is about ſeven inches and a half, and that of the tail more than eleven; *Pennant's Synopſ. of Quad. p.* 208.

Cayopollin, or kayopolin; *Fernandes, Hiſt. Nov. Hiſp. p.* 10. Animal caudinanum ſeu coyopollin; *Nieremberg, Hiſt. Nat. Peregrin. p.* 158.

Mus Indicus dictus coyopallin; *Charleton, Exercit. p.* 25.

Mus Africanus kayopollin dictus; *Seba, tom.* i. *p.* 39. *tab.* 31. *fig.* 3. *Note,* This is an American, not an African animal.

Philander ſaturate ſpadiceus in dorſo, in ventre ex albo flavicans, cauda ex ſaturate ſpadiceo maculata; *Briſſon. Quad. p.* 212.

† Franc. Fernandes, Hiſt. Quad. Nov. Hiſp. p. 10.

‡ Euſ. Nieremberg, Hiſt. Nat. Peregrin. p. 158.

theſe

these remarks verbatim, without adding any of his own. Seba *, who first gave a figure of this animal, has not described it. He only says, that its head is somewhat thicker, and its tail larger than those of the marmose or murine opossum, and that, though it be of the same genus, it belongs to a different climate, and even to a different continent. He then refers to Nieremberg and Johnston for farther information concerning this animal. But it is evident, that neither Nieremberg nor Johnston had ever seen it; for they only follow Fernandes. None of these three authors say that it is a native of Africa. They mention it, on the contrary, as peculiar to the mountains of the warm regions of America; and yet Seba, without the smallest authority, pretends that it is an African animal. That which we saw unquestionably came from America. It was larger, the muzzle was not so sharp, and the tail was longer than those of the murine opossum, and in every particular it approached nearer than the latter to the Virginian opossum. These three animals have a great resemblance in their external and internal structure, in the supernumerary bones of the pelvis, in the form of the feet, in the premature birth, in their long and constant adherence to the teats, and in their manners and dispositions. They all belong to the same climate of the New World. They are never found

* Seba, tom. i. p. 49. tab. 31. fig. 3.

in

in the cold regions of America, and cannot live even in temperate climates. Befides, they have all an ugly afpect. Their mouth, which is fplit like that of a pike, their ears, which refemble thofe of a bat, their ferpent-like tail, and their feet, fhaped like thofe of a monkey, exhibit a ftrange picture, which is rendered ftill more dif-agreeable by their offenfive fmell, and by the flownefs and ftupidity that accompany all their actions and movements.

END OF THE FIFTH VOLUME.

Plate CLXV.

A. Bell Sculp[t].

MEXICAN OPOSSUM.